

## A NEW APPROACH TO MITRAL VALVOTOMY

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The past decade has witnessed the acceptance of mitral valvotomy as one of the great operations of surgery, and tens of thousands of sufferers from mitral stenosis have benefited all over the world. The mortality has been low—in favourable cases about 1% and in the more serious grade-III and grade-IV cases 5-10%. Striking benefit has resulted in about 70% of cases, and it is exceptional for no improvement to be experienced, even in the more advanced and often neglected stages of the disease.

Unfortunately the ever-increasing occurrence of cases of restenosis of the mitral valve has tended to damage the reputation of the operation. The risk of restenosis has loomed so large in the minds of some physicians that many widely respected authorities hold that mitral valvotomy should only be performed in younger individuals, e.g. under the age of 40, when the indications are urgent and compelling. They advise waiting for the reason that all too frequently restenosis may be anticipated. Thus the striking advantages accruing from the relief of mitral obstruction is being denied to many patients.

The fact that restenosis does occur cannot be disputed; the initial complacency of the surgeon has been severely jolted and these cases have often been surgically embarrassing. Analysis of the causes of restenosis is difficult and not entirely satisfying. In many cases continued rheumatic activity is doubtless the responsible factor. Perhaps simple deposition of fibrin upon the rough edges of the valve may explain some of the recurrences. Certainly at a second operation the valvar cusps usually feel thicker and more rigid than they did at the first operation. However, the most important factor involved in the recurrence of mitral stenosis is probably the inadequacy of the original mitral valvotomy. Occasionally the valve is found to be so grossly deformed that it is clearly impossible to anticipate restoration to a near-normal state. If the valvar leaflets are adequately mobilized, partially separated commissures may easily fibrose and adhere once again.

Most experienced surgeons have recognized their inadequacies and have striven to improve their techniques and obtain as wide a separation of the fused valvar cusps as possible without compromising the competence of the valve. The early technique of finger fracture or separation of the fused commissures through a transatrial approach was, in resistant cases, soon improved by the addition of cutting techniques with the aid of cutting instruments introduced alongside the operating finger. These techniques are, in general, somewhat difficult and not entirely satisfactory, and even in experienced hands they do not always yield the maximal possible orifice.

It is difficult to assess and compare the degree of valvar opening obtained in different series of cases, because the site of the surgeon's efforts is not visualized and any measure-

ments reported are merely rough estimates. Clearly the degree of completeness of the valvar separation must vary considerably in different hands and also in different patients. In some cases, with considerable valvar distortion and possibly calcification, it has proved impossible to obtain an opening of adequate size. In many cases the chordae tendinae are thickened and shrunken and the papillary muscles contracted, and in these it is obviously almost impossible to obtain a normal valve opening.

Despite the improvement in the techniques of the closed operation some surgeons have been so dissatisfied with the degree of opening obtained that they have turned to the more hazardous and complex open approach with the aid of extracorporeal circulation. Under direct vision it is certainly possible to incise the commissures completely if the pathological process permits. The main objection to such an approach is its unnecessary complexity and extravagance, apart from the higher mortality ensuing from the perfusion itself and the dangers of air embolism.

## THE EXPANDING DILATOR

A new approach has recently been advocated which extends the scope and efficiency of the closed operation and will probably forestall the widespread adoption of open techniques for mitral valvotomy. This is the employment of an expanding dilator inserted into the valve orifice from below through a small incision in the left ventricle and opened in the plane of the commissures after being accurately guided into position by a finger inserted through the auricle. This technique was originally recommended for cases of mitral restenosis, where adequate separation of the leaflets may be almost impossible to achieve otherwise. However, the wide separation of the valvar leaflets obtained by this technique has been so impressive that it is rapidly becoming employed regularly as the technique of choice in mitral valvotomy. To surgeons who have battled with the intricate manoeuvres involved in obtaining a maximal orifice in cases where finger fracture has proved inadequate, the remarkable simplicity and efficacy of the new technique is most gratifying. Complete separation of both commissures can regularly be obtained without great difficulty. The degree of valvar separation that can be achieved almost always surpasses the best hitherto attainable.

I make so bold as to predict that with the proper employment of the transventricular technique the incidence of cases of restenosis will decline sharply and fewer cases will obtain only partial improvement because of a relatively poor and inadequate valvotomy. Although the new operation involves a ventricular incision as well as an auricular one it does not appear to have increased the risks of closed operations. I have now performed the operation in 16

cases without mortality and without producing any significant mitral regurgitation. Even in cases with considerable valvar thickening and even calcification I have been amazed at the satisfactory degree of valvar separation that regularly results. The frequent persistence of the apical diastolic murmur after transatrial valvotomy has been puzzling and disappointing. Since adopting the transventricular technique I have not found this to happen, but not enough time has elapsed to be dogmatic on this point.

In my opinion the only definite indication for open operation is in the case thought to be one of pure mitral stenosis in which the presence of extensive intra-auricular blood clot is suspected, though it cannot always be anticipated. Fortunately it is usually possible in the closed technique to wash out any intra-auricular clot that may be present by deliberately allowing a small bleed to occur from the incised auricle. When more certain techniques are available for the repair of mitral incompetence there will doubtless also be a place for open operation in cases of mitral stenosis thought to be associated with significant mitral regurgitation.

The use of an expanding dilator was first described and practised by Dubost<sup>1</sup> in 1954. He inserted the instrument through the appendix of the left auricle after preliminary palpation of the valve with the finger. The fact that the procedure was done blindly and without accurate positioning of the instrument before the expanding blades were opened destroyed its appeal for most cardiac surgeons. Several surgeons appear to have independently modified Dubost's technique to the transventricular one here described. Belcher<sup>2</sup> quotes a personal communication to this effect from Andrew Logan, and the modified technique is also practised by Tubbs, Gerbode, Brock, Cooley<sup>3</sup> and Conklin.<sup>4</sup> In order to meet the need that was felt for a dilator of wider calibre than the finger, Beck has used forcible dilatation from above by means of tape wrapped around his index finger and this technique was practised at Cape Town by Walter Phillips. However, the insertion of the bulbous finger through the atrium may be difficult and even dangerous.

#### Technique

The dilator that I use is the one designed by Tubbs (Fig. 1). Brock's two-bladed aortic dilator is also quite satisfactory.

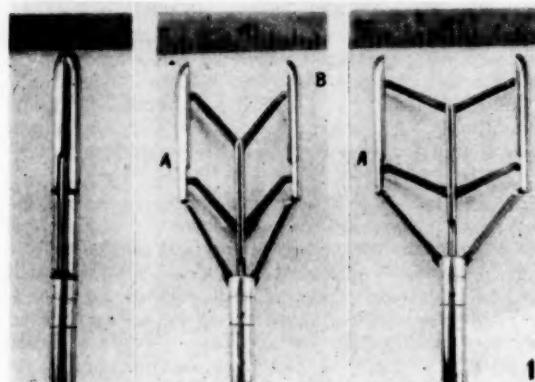


Fig. 1. The Tubb's expanding dilator closed, and opened to 3.5 cm. and 4.5 cm. The included scale is in inches.

The blades of the Tubbs dilator can be opened to a maximum of 4½ cm. and the degree of separation can be controlled by a small thumb screw. The instrument is designed to minimize the chances of entanglement with the chordae tendineae, but I have not personally encountered this possible difficulty.

The approach is made through a left lateral or anterolateral thoracotomy. The lung is retracted and the pericardium widely opened anterior or posterior to the left phrenic nerve. The appendix of the left auricle is incised before the application of the auricular clamp in the hope that any intra-auricular clot present will be washed out and not released into the circulation. The base of the appendix is then clamped and the appendicular incision enlarged and any trabeculae divided. I do not always use a purse-string suture. If the appendix is fibrosed, as it frequently is in second operations, and therefore does not afford a convenient approach, then the approach must be made directly through the left atrial wall and one must use a purse-string suture and stay sutures on either side of the incision. The ungloved index finger of the right hand is then introduced into the auricle and the mitral orifice palpated. Attempts are made to split both anterior and posterior commissures by simple pressure with the finger, and if satisfactory and complete splitting is obtained this will suffice. In my experience this happy state of affairs only occurs in about 5% of cases, and nearly always one has to proceed with the transventricular insertion of the dilator. A site free from major coronary vessels is chosen near the apex of the left ventricle. The intracardiac finger is passed into the left ventricle to ensure that no papillary muscle inserts at this site. A purse-string suture of number-one 'mersilk' on an atraumatic needle is inserted and held in a Rumel-Belmont tourniquet. A small 1 cm. incision is made in the centre of the purse-string suture; this need not enter the left ventricular cavity. The closed dilator, which has been set beforehand at an opening of 3.0-3.5 cm. is then gently inserted into the incision and pushed through into the cavity of the left ventricle and introduced through the mitral orifice under guidance of the right intra-auricular index finger. Care must be taken to see that the whole expanding portion of the instrument is completely inside the left ventricle. There is usually no need to tighten the purse-string suture, for the instrument itself satisfactorily plugs the incision in the left ventricle. The blades are then forcibly opened in the plane of the commissures so that the two blades respectively press against the anterior and posterior commissure. The instrument is closed and withdrawn, the purse-string suture is tightened, and the degree of opening of the valve assessed by the right index finger. If complete separation of both commissures has not taken place the instrument, which is now set to open to 4.5 cm., is again introduced and forcibly opened. The plane of the valve is such that the anterior commissure is lower than the posterior one and frequently the effective opening spread of the instrument is not the shortest distance between the blades but the oblique distance between the posterior blade and the left angle of the opened anterior blade (A to B in Fig. 1). Thus with a blade separation of only 3½ cm. it is sometimes possible to obtain an opening of 5.0-5.5 cm. Somewhat surprisingly, it is found that the plane of separation of the cusps remains confined to the commissures, and the

leaflets are not damaged. Naturally some caution must be exercised if any degree of regurgitation is encountered initially or starts after the initial dilatation. The intracardiac finger is withdrawn as the auricular clamp is applied and the atrial and ventricular incisions are sutured. The pericardial incision is only partially closed, to avoid any danger of tamponade. The left lung is reinflated and the chest wall is sutured after insertion of a water-seal drainage tube.

The transventricular technique can be combined with atrial exploration from the right side, as described by Cooley,<sup>3</sup> but this entails a bilateral thoracotomy. There are certain merits to the right-sided approach, which avoids any adhesions present on the left. This was first recommended by Bailey, particularly in second or third operations. In common with many other surgeons, I have experienced difficulty in obtaining a satisfactory orifice from this approach. I have not yet employed the right-sided atrial approach combined with the transventricular dilatation,

but I am impressed with its possibilities. The main objection would be the necessity for a bilateral thoracotomy.

#### SUMMARY

The new technique of transventricular valvotomy by means of Tubb's expanding dilator is described. The author finds that this technique results in far wider valvar separation than the older techniques. The fact is stressed that the main cause of mitral restenosis is inadequate mitral valvotomy.

#### ADDENDUM

Since submission of this article 20 further cases have been subjected to mitral valvotomy and in only 1 was finger-fracture alone satisfactory. There was no mortality attributable to the technique employed. However, 2 of these patients have had cerebral emboli.

#### REFERENCES

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2. Belcher, J. R. (1958): *Brit. Heart J.*, 20, 76.
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## TUBERCULOSIS\*

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For tuberculous disease to develop in a human being two factors are needed, viz. (1) the tubercle bacillus and (2) environmental stress. Infection with the tubercle bacillus alone is not sufficient. An individual who is adapted to his environment develops on infection a primary focus which is non-visible to X-rays, followed by complete resolution and a positive tuberculin reaction. If adaptation to environment is not complete, he gets tuberculous disease. The environmental stresses are all well known; they are as follows:

*Food.* Inadequate nutrition leads to increased susceptibility.

*Housing.* Overcrowding leads to increased opportunity for repeated infection.

*Sanitation and hygiene.* Bad sanitation leads to helminthiasis and other diseases associated with impure water and improper sewage disposal. Bad hygiene leads to increased opportunity for infection.

*Prolonged physical effort,* leading to fatigue and lessened resistance.

Tuberculin-positive persons can be divided on X-ray into 3 groups, showing respectively (A) nil on X-ray, (B) calcification (Ghon focus), and (C) evidence of tuberculous disease:

(A) *Nil on X-ray* = good resistance: Adaptation to environment.

(B) *Calcification (Ghon focus) ± fair resistance:* Moderate adaptation to environment, with breakdown in the disease if stresses are altered from moderate to great.

(C) *Tuberculous disease* = low resistance: Poor adaptation to environment; stresses too great.

### PROPHYLAXIS OF TUBERCULOSIS

#### 1. Mitigation of Environmental Stresses

This will lead to eventual disappearance of the disease:

\* Paper presented at the Plenary Session, on Tuberculosis, South African Medical Congress (M.A.S.A.), East London, C.P., September-October 1959.

*Food.* In nutrition the ultimate aim is to teach mothers, through education in nutrition, to feed their children adequately by giving them sufficient foods of the right kind. *But education in nutrition can be effective only if the necessary foods are available and can be purchased from the earnings of the family at risk.*

The other environmental stresses are bound up together in this country and must be removed before we can control tuberculosis properly. There is no doubt that in South Africa we have taken the housing stress seriously. During the last 20 years we have spent £136 million on new housing, particularly for the non-European. During the last decade the tempo of housing has been stepped up until in the last 5 years it has reached an expenditure of £10 million per annum.

It is an axiom that if certain environmental stresses are the cause of a case of tuberculosis disease then, even if you remove the patient to a hospital and treat him to apparent arrest, when he is returned to the environment which caused the disease he will break down in a short time. Hence the high rate of readmissions to hospitals in South Africa.

#### 2. BCG Vaccination

Individual biological resistance can be enhanced by BCG. Even if it is increased by 10-20% that is better than nothing. BCG is not of great value in countries where tuberculosis is scarce and in these countries it may interfere with the value of the tuberculin test in diagnosis.

#### 3. Chemoprophylaxis

Chemoprophylaxis with INH is very effective if applied to:

(a) Babies born in hospital of tuberculous mothers. There have been over 100 babies born in King George V Hospital of tuberculous mothers in the last 3 years, all of whom have been breast fed and cared for by their mothers. None of them developed tuberculosis while under INH prophylaxis. Indeed only 2 have become Mantoux positive, and these only because the parent omitted to give the INH.

(b) Hospital staff in contact with open cases of tuberculosis. Since October 1956 all nursing staff at King George V Hospital have been given INH prophylaxis and from that time to date only one nurse has developed tuberculosis, and she was back on duty after 3 months.

(c) Intimate contacts of cases. Contacts of cases treated at home should receive INH prophylaxis, and negative Mantoux reactors should receive INH-resistant BCG while taking INH as a prophylactic agent.

#### DIAGNOSIS OF TUBERCULOSIS

The best method of diagnosis is a tuberculin test followed, if the reaction is positive, by an X-ray.

Tuberculin tests must be performed with freshly prepared tuberculin given by intradermal injection. A 'Heaf' gun is also effective.

If radiology is not available then there is no need to throw up the sponge. A tuberculin test followed by a combination of clinical acumen and simple bacteriology is a very excellent method of diagnosis. Clinical examination of all symptomatic positive reactors, and sputum examination of all coughers, will turn up most of the cases requiring immediate treatment.

#### TREATMENT OF TUBERCULOSIS

The keynote of treatment is vigorous, *regular* treatment on first discovery. Irregular initial treatment results in *chronicity* and *inability to cure*. Proper treatment results in resolution of the tuberculous disease and this type of cure should be aimed at in every case.

If possible the first 3 months of treatment should be in an institution. When this is not possible every effort must be made to see that the patient attends regularly for injections and that he actually takes his oral medicines.

One thing must be kept constantly in mind and that is that adequate food of the right kind is as essential a part of domiciliary treatment as antibiotics or chemotherapeutic agents.

The suggested regimes are as follows:

#### Primary Tuberculosis

INH 20 mg. per kg. body weight per day. INH alone is effective in this type of disease and streptomycin and other agents are only required in cases presenting the adult type of disease, or in the presence of INH toxicity.

This regime is also suggested for tuberculous meningitis and for all positive reactors under 5 years of age. INH is the most important drug in tuberculous meningitis and should be given in the above dosage if there is any suspicion of tuberculous meningitis, while laboratory results are awaited. It is best given by injection in these cases to ensure absorption.

#### DRUGS USED IN THE TREATMENT OF TUBERCULOSIS

INH ..	..	..	..	Iso-nicotinyl acid hydrazide and derivatives ..	..	Best so far.
Streptomycin ..	..	..	..	Antibiotic ..	..	Good—but dangerous side-effects on 8th nerve.
PAS ..	..	..	..	Para-amino-salicylic acid and derivatives ..	..	Moderately good. Large dose necessary.
'Viomycin' ..	..	..	..	Antibiotic ..	..	Moderate—nephrotoxic.
Thiosemicarbazone ..	..	..	..	One of Domag's originals ..	..	Poor.
'Pyrazinamide'	..	..	..	Pyrazinoic acid amide ..	..	Very good—but said to be hepatotoxic.
'Kanamycin'	..	..	..	Antibiotic ..	..	New, experimental.
T.40 ..	..	..	..	5-bromosalicylylhydroxamic acid ..	..	Experimental. Similar effect to PAS but in much smaller doses, viz. 3 g. a day. Experimental.
Phenazine (Rimino) compound (B663)	..	..	..	2p-chloranilino-5p chlorphenyl-3 : 5-dihydro-3-isopropyl amino phenazine.	..	Experimental. Fairly good—side-effects ++ nausea.
'1314'	..	..	..	Alpha-ethyl thio-isonicotinamide ..	..	Fair—side-effects.
'Seromycin'	..	..	..	Antibiotic ..	..	

## RESISTANCE TESTS

Regular sputum examination in cases of pulmonary tuberculosis undergoing treatment for the first time reveals the following pattern in the majority of cases:

At first the organisms are numerous; after a few weeks of treatment they are moderate in number; and in a few more weeks they are to be found in scanty numbers only. At the end of a variable period, between 2 and 6 months, the organisms disappear from the sputum, indicating successful treatment.

If the numbers of organisms diminish to 'scanty' or 'nil' and then at subsequent examinations a moderate or large number are found, then it can be assumed that they have become, for practical purposes, resistant to the drugs employed.

Repeated examination of the sputum of cases which have already received treatment before admission to hospital may show the above pattern or may show moderate to large numbers of bacilli in all smears, again indicating resistance to the drugs exhibited.

Resistance to 'viomycin', 'seromycin', 'pyrazinamide', PAS, 'dipasic', '1314', 'kanamycin' etc. develops fairly rapidly, especially if they are not used in combination with other drugs; and if a case is still sputum-positive after 4 months' treatment with these drugs in any sort of combination, then it can be taken that the organisms have developed quite a considerable degree of resistance.

Resistance tests in general should be done for research purposes; for example, to ascertain what percentage of new, untreated cases have organisms resistant to INH and streptomycin, in order to see if resistant strains are becoming disseminated. The clinical and straight bacteriological approach is better for everyday use, and a good rule is that if a patient's sputum is still positive after 6 months of any combination of drugs, resistance to these drugs has developed to a practical degree and therapy ought to be changed. It is advisable, however, to continue to use INH throughout, because it is believed that INH-resistant organisms have a diminished biological virulence.

The following chart of a case shows how simply resistance can be detected:

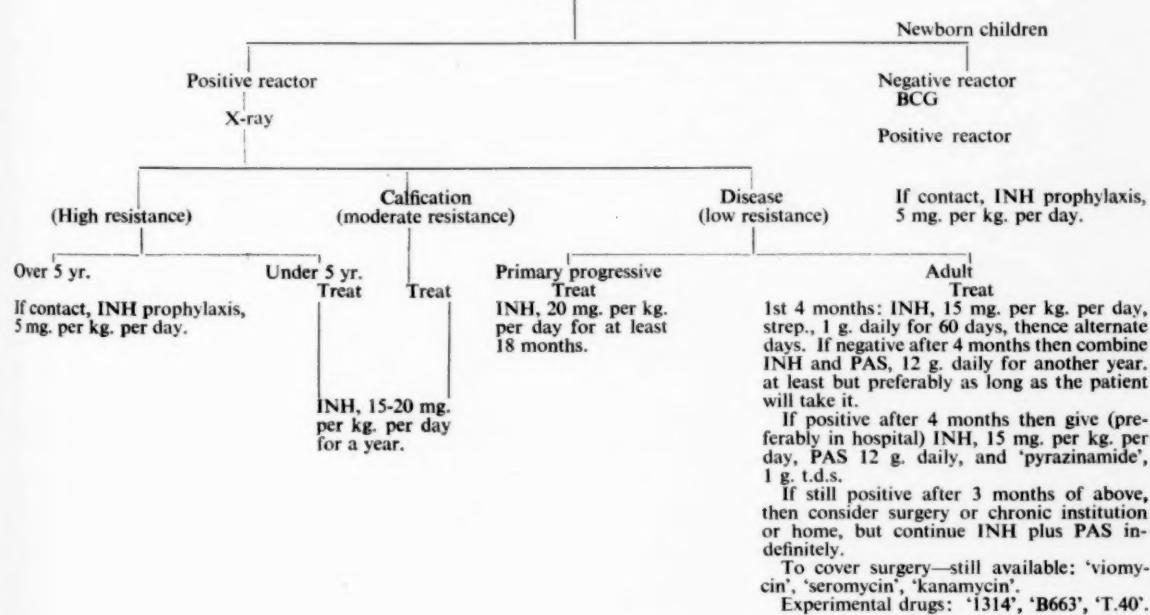
## ESTIMATION OF ACID-FAST BACILLI

Date	Numerous	Moderate	Scanty	Nil
9.11.58	X			
12.11.58	X			
17.11.58	X			
21.11.58			X	
24.11.58			X	
30.11.58			X	
14.12.58				X
21.12.58				X
21. 1.59				
14. 2.59				X
*21. 2.59			X	
* 1. 3.59	X			

\* Indicating resistance. Resistance tests done here would take about 2 months for answer.

## CONTROL OF TUBERCULOSIS

## Tuberculin Test



## APPENDIX: SOUTH AFRICAN TUBERCULOSIS FIGURES OF INTEREST

## ESTIMATED POPULATION OF UNION BY RACE AS AT 30 JUNE 1957

Whites	..	2,957,000	20.8% of total
Coloured	..	1,319,000	9.3% of total
Asiatics	..	431,000	3.05% of total
Natives	..	9,460,000	66.7% of total
All races	..	14,167,000	

## PERCENTAGE LIVING IN URBAN AREAS, 1957; UNION

Whites	..	..	81%
Coloured	..	..	68%
Asiatics	..	..	80%
Natives	..	..	30%

## ANNUAL NOTIFICATIONS OF TUBERCULOSIS

	Year	Total	
		European	non-European
1954	..	1,646	35,996
1955	..	1,498	38,181
1956	..	1,530	46,442
1957	..	1,478	50,818
1958	..	1,453	56,912

## BEDS AVAILABLE FOR TREATMENT OF TUBERCULOSIS (ALL RACES)

	Year	Total	
		Existing	Proposed
Central Government	..	4,935	686
Local authorities	..	2,606	739
Mission hospitals	..	3,992	294
Private hospitals	..	2,317	0
SANTA settlements	..	6,137	1,595
		19,987	3,314
			23,301

## ANNUAL EXPENDITURE ON TUBERCULOSIS AND PERCENTAGE OF TOTAL UNION HEALTH VOTE

Year	Total Health Vote	Expenditure on Tuberculosis	Percentage of Total Vote	
			of Total	Vote
1947-48	..	4,108,500	689,332	16.8%
1952-53	..	7,144,000	1,402,715	19.6%
1955-56	..	10,000,000	3,000,000	30%
1956-57	..	10,513,690	3,397,704	32.3%
1957-58	..	11,276,382	4,254,067	37.7%
1959-60	..	12,890,000	5,352,765	41.5%

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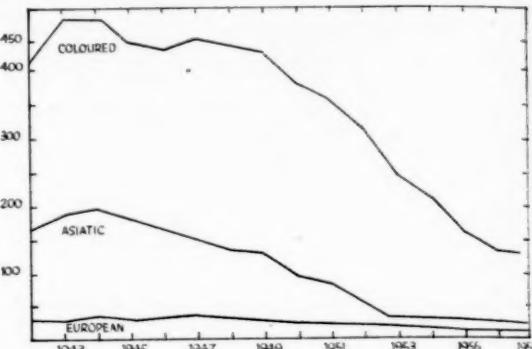
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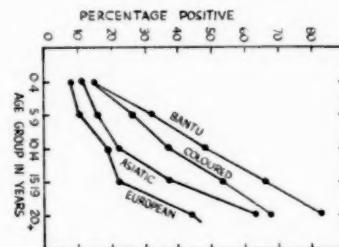
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## DEATH RATE FROM TUBERCULOSIS PER 100,000 POPULATION OVER A SERIES OF YEARS, UNION OF SOUTH AFRICA



## PERCENTAGE OF POSITIVE MANTOUX RESULTS BY RACE AND SEX, UNION OF SOUTH AFRICA 1948-54



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# South African Medical Journal : Suid-Afrikaanse Tydskrif vir Geneeskunde

## EDITORIAL : VAN DIE REDAKSIE

### THE NEW APPROACH TO MEDICAL AID SOCIETIES

The recent decision of the Federal Council to extend the medical aid society movement to groups of persons which have enlisted the help of insurance companies does not seem to be clearly understood by many of our members.

At the outset it is important to understand very definitely that *no* insurance company *per se* is recognized by the Association; nor is there any present intention of recognizing them. They will continue to operate along their chosen lines, and their contract is between themselves and their patients and not with the doctor. The patient contracts with the doctor as a private individual and looks to his insurance company to provide him with the assistance for which he pays a premium.

For those who are not clear regarding the position of medical aid societies, it should be stated that any group of persons having a common interest may apply to the Medical Association for recognition as an approved society provided they can show that their members fall within the lower or middle income category, i.e. no members earn more than £2,500 gross *per annum*, the average income of members is £1,100 gross *per annum* or less, and not more than 3% earn between £1,750 and £2,500. If, in addition, the society undertakes to pay the doctor's account direct and in full if charged according to the preferential tariff for approved medical aid societies, the name of the society will probably be added to the list of approved medical aid societies. Most societies are run by commercial and industrial concerns which also attend to the business organization of their own society, but the Medical Association does not insist on this arrangement and is not greatly concerned about who carries out the bookkeeping of a society. It does insist that no directors or shareholders should make profits out of a doctor's work or a patient's misfortune and is concerned that a member should get a fair return in benefits for his subscription.

There are a number of examples of composite medical aid societies which are approved by the Medical Association, and the best known of these is probably the United Banks Medical Aid Society. In this society any organization which is registered under the Banking Act is eligible for membership and the society is really a central office which attends to the business of the medical aid society members who form the staffs of all the registered banks. The Chamber of Mines Medical Aid Society is another example, and deals with the office staffs of a number of mining houses and their many subsidiary companies. In Johannesburg the employees of a number of firms are banded together in approved societies and employ a firm of secretary/accountants to attend to their business affairs, while in Natal the Chamber of Industries Medical Aid Society conducts the affairs of its members belonging to a number of separate companies.

The Federal Council has recognized that there are a number of groups of persons in commercial and industrial organizations who fall within the income limits laid down by the Association but who, for various reasons, have not formed their own medical aid societies. If they had done so, they would no doubt have been approved by the Association. The

demand for social security, which is world-wide today, has led these groups to seek the assistance of others to provide the organization and experience necessary. They have turned to the mutual, non-profit insurance companies to help them, and the insurance companies have asked that we treat these groups of persons as if they were organized like any other approved medical aid society.

It is to this that the Federal Council has agreed. The group so approved will be known by its own name and the member will have a card bearing the name of his firm under which approval has been given. As far as we are concerned the mutual, non-profit insurance companies will merely be the business managers of a number of new approved medical aid societies—neither more or less—and all those persons who fall outside the groups we have approved will be private patients, who may or may not have had the foresight to provide for their own assistance by means of indemnity in times of illness. As private patients they should be charged fees in accordance with their financial standing as is usual practice.

It should be repeated that it is not the insurance companies themselves that are to be approved, but only separate organized groups of persons who have sought help in managing their medical aid affairs and who, in all respects, conform to the Association's rules for approval. The resolutions of the Federal Council cover a wide field in an endeavour to assist persons who fall within the lower and middle income groups, and envisage approval for 'all groups' of persons who conform to our rules, whether it be a mutual, non-profit insurance company, the Medical Services Plan or any other organization which administers them on a mutual, non-profit basis. The two resolutions of the Council are as follows:

1. 'The Medical Association of South Africa agrees to cooperate with insurance organizations which provide pre-paid medical care, in order to enable them to provide an adequate medical service to the public,' and

2. 'That the preferential tariff as amended from time to time be granted to all groups which can conform with the rules laid down for approval as a medical aid society, on the understanding that the organization administering them will in their turn undertake to pay the accounts of doctors direct and in full.'

There are a number of medical aid societies which were formerly approved by the Association and which chose to be taken over by mutual, non-profit insurance companies for administration purposes. By resolution of Federal Council these ceased to be approved by the Association and the members were no longer entitled to the preferential tariff. This resolution was rescinded at the recent meeting of the Council and it is possible that some of these former societies may be among the first to be recognized under the resolutions quoted above.

It should be stressed that even though a considerable number of new groups may be approved, there will always be some who will fall outside the scope of the 'medical aid society' arrangement even though they may insure themselves

against illness under one of the insurance schemes. This form of insurance, as has been mentioned, is a contract between the insurance company and the member (or patient) and there is no obligation for the company to pay the doctor, but only to indemnify the member to the extent of his cover. The Association will have no agreement in respect of these insured persons in terms of the resolutions quoted, and doctors will

have to look to the patients for their fees as is the case generally in private practice. Only in the groups which are approved will there be an obligation to pay the doctor direct and in full according to the preferential tariff.

At the time of going to press, no new groups (or societies) have been approved in terms of the Council's resolutions. As soon as any are approved their names will be published in the *Journal* for general information.

#### ONBELANGRIKE SIEKTES\*

Daar bestaan ongetwyfeld 'n aansienlike aantal toestande wat 'n mens dikwels by pasiënte aantref, maar wat nie in enige standaard handboek beskryf is nie en wat geensins die lewensverwagting van die pasiënt beïnvloed of sy normale aktiwiteite beperk nie. Die meeste pasiënte verwag egter tog altyd 'n naam vir hul siekte en baie verwag ook 'n elementêre verklaring van wat aan die gang is.

In die tweede Lettsomiese lesing<sup>1</sup> vir 1959 het Richard Asher die gehoor gevra dat almal hulle hande moet opsteek wat al 'n kort, skerp, naaldagtige pyn nabij die punt van die hart ondervind het wat skerp gelokaliseer is tot een plek binne die borskaswand en wat voel asof iets daaraan vaskleef. Asemhaling verskerp die pyn en die persoon voel nie geneë tot 'n diep asemhaling nie. Die pyn verskyn skielik en verdwyn binne enkele minute en, hoevel akut, is dit nie in die minste onrusbarend nie. Meer as een derde van die gehoor het hulle hande opgesteek. Hy het voorts beweer dat die toestand nie 'n naam het nie, en dus nie 'n kliniese bestaan het nie.

Kort na die publikasie van die lesing het die Briererubriekie in die betrokke tydskrif (*Lancet*) die aandag daarop gevrestig dat die toestand wel beskryf is deur Miller en Texidor,<sup>2,3</sup> en in 'n latere brief bevestig Asher<sup>4</sup> dan ook hierdie mededeling, en verwys hy na 'n voller bespreking deur Miller en Texidor<sup>5</sup> in 'n onlangse publikasie. Asher<sup>4</sup> stel dan in die brief voor dat die naam 'Texidor's twinge' gou populêr sal wees onder die publiek en as alternatief kan 'precordial catch' gebruik word.

'n Ander toestand wat ook onlangs die aandag getrek het, is 'sluimer-rukkings' ('drowsing jerks'). Hierdie toestand van nagtelike miokloniese trekkings kom algemeen voor, en die meeste mense ondervind dit op die een of ander tyd. By sommige persone kom die toestand egter meer dikwels voor en kragtiger trekkings vind plaas. Sommige neuroloë, onder wie Symonds,<sup>6</sup> beskou laasgenoemde

groep as 'n vorm van epilepsie—'n opvatting wat ondersteun word deur die voorkoms van duidelike epileptiese aanvalle by sommige van hierdie persone, die verbetering wat intree met antikonvulsieve middels en die, weliswaar seldsame, elektro-ensefalografiese abnormaliteite in enkele gevalle. Oswald,<sup>6</sup> daarenteen, het vier gevalle tot in syn besonderhede ondersoek en vind geen punte van verskil tussen die enkele ruk by 'normale' persone, en die trekkings wat in 'n ergeregraad en meer dikwels by sommige persone voorkom nie. Hy stel voor dat geestesspanning verwant mag wees aan die veelvuldige voorkoms van hierdie trekkings, en dat dit net so wel psigogene as epileptiese mag wees. Die E.E.G.-studies in hierdie gevalle toon dan ook 'n gewysige ontwakingspatroon eerder as 'n epileptiese ontlasting.

In die oorgrote meerderheid van gevalle is hierdie trekkings waarskynlik nie epilepties van aard in die kliniese betekenis van die woord nie. Die feit dat die toestand soms in aansluiting aan epilepsie voorkom, mag slegs dui op 'n groter neiging tot sinkronisasie van neuronale ontlading in epileptici as in normale persone.

Daar bestaan ongetwyfeld baie sulke verwante verskynsels waarvan die meganisme onbekend of onseker is en, omdat die verskynsels nie benoem is nie, kan ons nie van hulle praat nie en bestaan hulle dus nie as kliniese begrippe nie. Ons luister na die pasiënt se beskrywing van sy toestand, maar veronsgaam dit dan as iets wat van geen belang is nie en ons koncentreer op bestaande kliniese toestande wat wel name het. 'n Toestand wat geen naam het nie beteken (in kliniese en praktiese terme) 'n dokter wat geen raad het nie.

1. Asher, R. (1959): *Lancet*, 2, 359.
2. Miller, A. J. en Texidor, T. A. (1959): *J. Amer. Med. Assoc.*, 159, 1364.
3. *Idem* (1959): *Ann. Intern. Med.*, 51, 461.
4. Asher, R. (1959): *Lancet*, 2, 735.
5. Symonds, C. P. (1953): *J. Neurol. Neurosurg. Psychiat.*, 16, 166.
6. Oswald, I. (1959): *Brain*, 82, 92.

#### SOME ASPECTS OF AN ANALYSIS OF 8,701 OBSTETRIC CASES FROM A TRANSKEI HOSPITAL

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There appear to be no obstetric figures available from the Bantu reserves of South Africa and, as these reserves have their own peculiarities of population distribution, agriculture, and economic and social factors, and primitive ideas about health, disease and childbirth, it was decided to analyse a series of obstetric cases from a Transkei hospital.

Certain aspects of a broad analysis of 8,701 obstetric cases over a period of 9½ years are now presented from the Sir Henry Elliot Hospital, Umtata.

Let it be said at the outset that many of the statistics disclosed by this analysis are far from ideal, and would probably be considered appalling for any urban area; but in the Reserves, with their many problems, one probably sees a good deal more abnormal obstetrics than in any other part of the country.

The cases have come from every district in the Transkei. There has been no functioning antenatal clinic at this hospital and, as far as we know, no provincial hospital in the Transkei

provides a modern antenatal service. If such provision were made, the peri-natal and maternal mortality would undoubtedly decrease, but it would probably still be higher than normally accepted figures, for such reasons as the scattered nature of the population, the relative deficiency of transport and communications, and unwillingness on the part of some of the mothers to be confined in hospital. The vast majority of Xosa women have their babies at home; the more enlightened ones, and those in trouble, come to hospital.

These maternity patients present themselves for admission when in labour, or when they are in labour difficulties, whether they live 5 or 70 miles away. Thus a woman in labour with some difficulty or other has to consult her husband or relatives about going to hospital, and perhaps also a witch-doctor. The relative then has to go to the nearest trading station to telephone for a very overworked ambulance to fetch the patient. Thus there is often a considerable delay before the ambulance eventually arrives at the hospital with the patient, after traversing some very 'secondary' roads. Thus mothers are often admitted after having been in labour for 3 or 4 days.

**Material.** From the period January 1950 to July 1959, 8,701 expectant mothers, delivered of 9,150 babies, were admitted to the 18-bed obstetrical ward of the Sir Henry Elliot Hospital, Umtata. They were all emergency admissions. It is not known how many of them had antenatal care from private doctors or mission hospitals. All the 8,701 patients, except 186 Coloured were Bantu, chiefly of the Xosa tribe.

**Normal labours.** The patients who were delivered normally and had live babies numbered 6,040, i.e. 69.4%.

#### STILLBIRTHS AND OTHER PERINATAL MORTALITY

There were 1,104 perinatal deaths, a rate of 120.7 per 1,000 live births and stillbirths. Of these, 838 or 91.6 per 1,000, were stillborn. In a Cape Town series given by Resnick,<sup>1</sup> the stillbirth rate for non-Europeans was 50.5 per 1,000.

No foetal heart sounds were heard on admission in 473 of the stillbirth cases, i.e. 56.4%. 220 stillbirths were premature (26.3%).

The stillbirths are classified in Table I, from which it can be seen that 578 (69.4%) were due to mechanical stresses or hazards of labour. This is in contrast with 38.3% in Resnick's series,<sup>1</sup> which is to be expected under the widely differing conditions. The obvious inference here is that

TABLE I. ANALYSIS OF STILLBIRTHS

<b>Group A. Hazards of Labour,</b> including umbilical-cord complications, forceps extractions, ruptured uterus, Caesarean section, destructive operations, precipitate labour and abnormal presentations.	578 (69.4%)
<b>Group B. Unknown Causes,</b> including macerated (68) and fresh (54) stillbirths.	122 (14.8%)
<b>Group C. Maternal Conditions during Pregnancy,</b> including antepartum haemorrhage, pre-eclamptic toxæmia, eclampsia, syphilis and diabetes.	90 (10.8%)
<b>Group D. Foetal Malformations,</b> including hydrocephalics, anencephalics and others.	31 (3.7%)
<b>Group E. Miscellaneous,</b> including 6 extra-uterine pregnancies and 5 post-mature (?) cases.	11 (1.3%)
<b>Total Stillbirths</b>	832

these are preventable foetal deaths. Lawson and Lister<sup>2</sup> show a 5-times greater, and Resnick<sup>1</sup> a 6-times greater,

stillbirth loss in emergency admissions, than in 'booked' cases. In the present series, cord complications, transverse lie, prolonged and difficult labour and forceps delivery accounted for the majority of Group-A stillbirths.

The stillbirths in Group C are less than would be expected, for there is a high incidence of chronic malnutrition in the pregnant Xosa women in the reserves; this observation applies, too, to the relatively low prematurity stillbirth rate. Possibly a fair proportion of Group B belongs to Group C. As Rh typing and Wassermann tests have not been done throughout, the number of stillbirths due to these factors is unknown. Zoutendyk<sup>3</sup> has shown that haemolytic disease of the newborn is uncommon in the Bantu.

The incidence of stillbirths from foetal malformations (Group D) is comparatively low (3.7%). Baird *et al.*<sup>4</sup> found a proportion of 15.6% in Aberdeen, and in Resnick's series<sup>1</sup> the incidence (2.9%) in Cape Town is low. The figure in this series would be higher, were it not for the large proportion in Group A.

There are many unexplained stillbirths, i.e. the 'fresh' stillbirths in group B ('unknown causes') where, in many instances, the foetal heart sounds are good before delivery but, a few minutes later, delivery of a dead baby is the end-result of a perfectly normal labour. This finding is also mentioned by Lister<sup>5</sup> in Nigeria.

#### MATERNAL MORTALITY

There were 51 maternal deaths, an incidence of 5.9 per 1,000 parturients. Corrected for 18 cases admitted moribund, the incidence is 3.8 per 1,000. An analysis of the maternal deaths is given in Table II. It can be seen that one-half

TABLE II. CAUSES OF MATERNAL MORTALITY

Ruptured uterus	17 (33.3%)
Obstetric shock (prolonged labour)	9 (17.6%)
Toxaemia	5 (9.8%)
Anaesthesia	3 (5.9%)
Caesarian section	3 (5.9%)
Haemorrhage	3 (5.9%)
Pulmonary embolus	2 (3.9%)
Puerperal sepsis	2 (3.9%)
Diverse *	7 (13.7%)
Total maternal deaths	51

\* Congestive cardiac failure 1, volvulus of caecum 1, paralytic ileus 2, pneumonia 1, acute yellow atrophy 1, burst abdominal wound and shock 1.

of the total is due to prolonged labour and its associated hazards, one-third of the total being due to uterine rupture alone. Eclampsia accounted for only 10% of the deaths in this series. Simpson Wells<sup>6</sup> gives the annual non-European maternal mortality for the City of Cape Town over the 10 years 1948-57 as 1.15 per 1,000 total births, of which 29% are due to toxæmias of pregnancy and the puerperium.

#### MULTIPLE PREGNANCY

The incidence of twin pregnancy is generally accepted as 1 in 80, and the incidence of triplets as 1 in 6,000 or more. These figures certainly do not apply to the African women delivered in the Sir Henry Elliot Hospital. In this series there were 423 twin births (an incidence of 1 in 21), and 13 triplet births (an incidence of 1 in 669).

Lavery<sup>7</sup> reports 180 twin births in 4,625 cases, mostly Natives, at Baragwanath Hospital, Johannesburg, an incidence of 1 in 26. Lawson and Lister,<sup>2</sup> in Ibadan, quote an incidence of 1 in 24. However, Nixon *et al.*<sup>8</sup> found no signifi-

cant difference in the incidence of twin pregnancy amongst Africans as compared to a European group in an urban area in Northern Rhodesia.

In the present series, 62 of the twin pregnancies were mothers admitted with a retained twin. Excluding these cases, the incidence still works out to 1 in 24. An analysis of the twin pregnancies is given in Table III. It can be seen that 87.8% of the cases were multiparous women, and

TABLE III. ANALYSIS OF MULTIPLE PREGNANCIES

Twins	423	( 1 in 21)
Triplets	13	( 1 in 669)
Total multiple pregnancies	436	( 1 in 20)
Eclampsia	3	
Pre-eclampsia	16	( 4.4%)
Multiparae	383	( 87.8%)
Stillbirths	126	( 28.9%)
Admitted with retained twin	62	( 14.2%)
Maternal mortality	5	( 11.5 per 1,000 parturients)
Extra-uterine pregnancy	1	( 0.23%)

that in only 4.4% of cases was there recognizable eclampsia or toxæmia. The latter figure is perhaps not a true reflection, as will be indicated later. There does not appear to be any explanation for the seemingly higher incidence of multiple pregnancy in these Africans; the incidence of infertility in the reserves appeared to be high.

#### OBSTETRICAL OPERATIONS

##### Caesarean Section

There were 640 Caesarean sections performed over the 9½-year period, an incidence of 7.4%. Nixon *et al.*<sup>8</sup> record the wonderfully low incidence of 0.33% in their series of 10,000 African deliveries in a well conducted clinic in Northern Rhodesia. Montgomery<sup>9</sup> found an incidence varying between 2.7% and 7.3% in a rural area in Southern Rhodesia, and van Dongen<sup>10</sup> records an incidence of 2.03% over a 10-year period in a European group in Johannesburg.

The vast majority of Caesarean sections in this series were of the lower-uterine-segment type. The indications and their frequency are listed in Table IV. Cephalo-pelvic disproportion accounted for 67% of sections performed, but quite a number in this category were done for combined reasons with disproportion as the common basic factor. Disproportion appears to be very common in the Xosa.

TABLE IV. ANALYSIS OF INDICATIONS FOR CAESAREAN SECTION

Disproportion	429	( 67.0%)
Placenta praevia	52	( 8.1%)
Foetal distress	47	( 7.3%)
Abnormal presentation	23	( 3.6%)
Previous Caesarean section	20	( 3.1%)
Cervical and vaginal pathology (not VVF)	15	( 2.3%)
Incoordinate uterine action	12	( 1.9%)
Antepartum haemorrhage	9	( 1.4%)
Vesicovaginal fistula	6	( 0.9%)
Pre-eclamptic toxæmia	4	( 0.6%)
Uterine prolapse	4	( 0.6%)
Diverse indications *	19	( 3.0%)
Total Caesarean sections	640	

\* Constriction ring 3, bad obstetrical history 3, foetal abnormality 3, maternal disease 3, impending uterine rupture 2, elderly primipara 2, cord presentation 2, maternal distress 1.

The group classified under abnormal presentation included brow presentation and transverse lie with a tonically contracted uterus.

##### Forceps Delivery

There were 521 forceps deliveries over the 9½-year period, an incidence of 6.0%.

##### Destructive Operations

There were 48 destructive operations performed, an incidence of 1 in every 181 labours. This is very high, but a considerable number of patients are admitted after having been in labour for 48 hours or more with an obstructed vertex presentation, or with a transverse lie and dead foetus. The incidence given here is probably at least 3 times as high as any comparable European group in this country. Montgomery<sup>9</sup> found an incidence of 45 destructive operations in 3,275 deliveries in a Rhodesian rural area, an incidence of 1 in 73 labours. Present-day tendency appears to favour Caesarean section as being far less dangerous to the mother than the well-known hazards of certain destructive operations. In the present series, 4 ruptured uteri were discovered after destructive operations and 7 after internal podalic version. These destructive operations are one of the unfortunate aspects of obstetrics in rural areas such as this, where patients come from miles away when in difficulty with their labours.

##### ECLAMPSIA AND PRE-ECLAMPTIC TOXAEMIA

In an area where the vast majority of pregnant women receive little or no antenatal care one would expect a high incidence of the toxæmias of pregnancy. It is generally accepted in this country that the incidence of pre-eclamptic toxæmia is lower in the Bantu than in the Coloured or European races; however, there appear to be no comparative figures to make this perfectly clear. It is also known in this country that there are apparent geographical differences in the incidence of toxæmia and eclampsia. These two features are not explained by F. J. Browne's theory<sup>11</sup> of the aetiology of pre-eclampsia and eclampsia; viz. that placental ischaemia results in failure of placental oxygen-sensitive oxidases to inactivate the pressor hormones from the hyperactive adrenal cortex of pregnancy. Browne<sup>11</sup> states that toxæmia and eclampsia appear to be commoner in certain areas of the USA where pellagra is endemic, and suggests that deficiency of vitamin B complex is a factor in the production of toxæmia and eclampsia. Yet in the Transkei where deficiency of vitamin B complex is practically endemic, and pellagra very common, the incidence appears to be lower than that encountered in the European races.

In this series, there were 18 cases of eclampsia in 8,701 cases, an incidence of 1 in 483 or 0.2%, a comparatively low figure in an area where properly supervised antenatal care is minimal. There were 67 cases (0.77%) classified as pre-eclamptic toxæmia, i.e. with systolic pressure over 140 mm. Hg and/or diastolic pressure over 90, and/or albuminuria. The incidence by parity (as between primiparae

TABLE V. ECLAMPSIA AND PRE-ECLAMPSIA

	Primiparae	Multiparae
No. of cases	3351	5350
Eclampsia	13 (0.39%)	5 (0.09%)
Pre-eclamptic toxæmia	35 (1.04%)	32 (0.60%)

and multiparae) is shown in Table V. Unfortunately, the figures for pre-eclamptic toxæmia in this series cannot be regarded as a true reflection, for 2 reasons, viz.: (1) As there is no antenatal or follow-up clinic, and laboratory

facilities it is not possible to make a definite diagnosis of nephritis were of urine.

At B. Laverty (8.8%) of pregnant Bantu?

In the multiple (5%)

Breech presentation Face Brow Complicated Cord problems

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Transverse cases, is stated expected no satis compli 73 still uterine should and in on adm

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Prolapse to be a this se prolapse resulting tality bition is associa (59.5% face an

facilities have not been available till comparatively recently, it is not known how many of these patients were cases of nephritis or of essential hypertension. (2) Case records were often incomplete, blood-pressure readings and results of urinalysis being omitted in many instances.

At Baragwanath Hospital, Johannesburg, in 4,625 cases Lavery<sup>7</sup> reports 16 eclamptics (0.34%) and 408 pre-eclamptics (8.8%). Is it possible that the incidence of the late toxæmias of pregnancy is lower in the rural Bantu than in the urbanized Bantu?

#### ABNORMAL PRESENTATIONS

In the 8,265 cases in the series (exclusive of the 436 cases of multiple pregnancy) there were 484 with abnormal presentations (5.9%). They are classified in Table VI.

TABLE VI. ABNORMAL PRESENTATIONS

Breech presentation ..	139	1 in 59
Persistent occipito-posterior ..	131	1 in 63
Transverse lie ..	97	1 in 85
Face ..	12	1 in 689
Brow ..	13	1 in 636
Compound presentation ..	13	1 in 636
Cord prolapse ..	79	1 in 105
Total abnormal presentations ..	486	

*Breech presentation* occurred in 139 cases, an incidence of 1 in 59 (1.7%). Of these, 32 were admitted with the breech half born, and there was a total of 68 stillbirths a corrected mortality of 25.9% (36 in 139 cases).

*Persistent occipito-posterior* presentation occurred in 131 cases, or 1 in 63 (1.6%). Excluding the cases that terminated in forceps delivery, there were 4 stillbirths.

*Transverse lie* or shoulder presentation was seen in 97 cases, an incidence of 1 in 85 (1.2%). The usual incidence is stated to be 1 in 150 - 200 deliveries.<sup>12</sup> As might be expected under the conditions prevailing in this area, with no satisfactory antenatal care, the stillbirth rate from this complication is exceedingly high, there being no less than 73 stillbirths (75%)-of which 8 cases were associated with uterine rupture—directly or indirectly due to usually neglected shoulder presentations. Of these 73 foetuses 28 were macerated, and in the great majority no foetal heart sounds were audible on admission.

*Face and brow.* There were 12 face and 13 brow presentations, an incidence of 1 in 689 and 1 in 636 respectively. Excluding the cases admitted with no foetal heart sounds audible, the corrected stillbirths rate were 25% and 15% respectively.

*Compound presentation.* The 13 compound presentations (1 in 636) were as follows: Arm or hand with head 11, hand and breech 1, vertex, hand, foot and cord 1. They included 8 stillbirths, and 3 prolapsed cords.

*Prolapsed cord.* The incidence of this accident is stated to be about 1 in 200 deliveries.<sup>12</sup> As might be expected, in this series the incidence is high, there being 79 cases of prolapsed cord, or 1 in 105. In 36 cases the cord was prolapsed on admission, and altogether there were 64 stillbirths resulting from this complication, the corrected foetal mortality being 36%. (The foetal mortality from this complication is quoted at between 25 and 40%.) The presentations associated with the prolapse were as follows: Vertex 47 (59.5%), breech 12 (15.2%), transverse lie 16 (20.3%), face and brow 1 (1.3%), compound 3 (3.8%).

#### ANTEPARTUM HAEMORRHAGE

The cases classified under this heading numbered 130.

##### Placenta Praevia

There were 80 cases of this condition. Unfortunately the type was not always stated, and so it was not possible to analyse the various grades of placenta praevia. Caesarean section was performed in 52 cases, and the remaining 28 were treated conservatively, by forceps delivery, version or rupture of the membranes. There were 29 stillbirths including triplets (35) attributable to this condition. In a series of cases with antepartum haemorrhage from the Cape Town institutions reported by Louw,<sup>13</sup> there were 48 stillbirths in 224 cases (21%).

One mother (grav. 3) with placenta praevia died, but on admission she had a blood pressure of 200/130 mm. Hg and was bleeding freely. As well as a type 1 or 2 placenta praevia, a large retroplacental haematoma was found, and she had a massive postpartum haemorrhage. She died with oliguria 4 days after delivery.

##### Accidental Haemorrhage

In the 50 cases of accidental haemorrhage, 34 of the infants (68%) were stillborn. This high figure is only to be expected where antenatal supervision has been minimal or non-existent, and where there is a chronic shortage of beds. The accidental haemorrhage was attributed to toxæmia of pregnancy or hypertension in 7 cases (14%), and in one case it followed external cephalic version. In 42 cases (84%) the cause of the haemorrhage was unknown. An interesting feature is that 43 (86%) of these cases of accidental haemorrhage were multigravidae.

##### Maternal Deaths

Two mothers died as the result of haemorrhage. One case has already been described under 'placenta praevia'. The other was a patient who had an accidental haemorrhage as part of a generalized bleeding tendency manifest as haematuria, bleeding gums, and postpartum haemorrhage following delivery. The cause of death was certified as puerperal sepsis. This case may well have been one of fibrinogenopenia, of which, however, the incidence in this series is unknown.

#### RUPTURED UTERUS

Rupture of the uterus seems to occur far oftener in the African than in the European. Harris and Angawa<sup>14</sup> (Kenya) reported an incidence of 1 in 117 births; Lavery<sup>15,16</sup> (Baragwanath, Johannesburg), 1 in 137 deliveries and 1 in 219 deliveries in 2 separate series; and Montgomery<sup>9</sup> (Rhodesia) 1 in 300 deliveries.

In the present series there were 57 cases of ruptured uterus, an incidence of 1 in 153 deliveries (Table VII); and 17 maternal deaths were attributable to this accident, a maternal mortality of 29.8%. In 51 cases the rupture was associated with a stillbirth (89.5%). The parity of the 57 cases ranged from 5 primiparae to 1 para 10. The bulk of the ruptures occurred in women between para 1 and para 5, the largest number (13) falling in para 3. The ages ranged between 20 and 44 years, the quinquennial age-group with the most cases (25) being 25 - 30. In 26 cases the uterus was ruptured before admission.

*Rupture through scar.* Twelve cases were associated with dehiscence of the scar of a previous Caesarean section (4 classical, 8 lower uterine segment). As far as could be

TABLE VII. RUPTURED UTERUS			
<i>Total Ruptures</i>	57		
Rupture through scar	12	Classical	4
		Lower segment	8
Spontaneous	31	Transverse lie	6
		Disproportion	18
		Unknown	7
Associated with obstetric interference	14	Destructive operation	4
		Internal version	7
		Forceps	3
<i>Maternal Deaths</i>	17		
Following repair	7		
Following hysterectomy	7		
Before surgical treatment	3		
Associated with scar rupture	0		
<i>Stillbirths</i>	51		
<i>Live Births</i>	6		
<i>Surgical Treatment</i>	54		
Repair of uterus	37		
Hysterectomy	17		
<i>Average Parity of Cases</i>	3.4 pregnancies		
<i>Average Age of Cases</i>	28.8 years		

ascertained, these were mostly complete ruptures, involving endometrium, muscle and peritoneum, but this was not always stated. In 2 cases of rupture of a lower-segment scar, the bladder was ruptured as well. One of these (which I saw) showed a tear of the postero-superior surface of the bladder where it had been in close relationship to the lower-segment scar. The whole interior of the bladder and trigone were clearly visible. Both of these cases did very well with bladder repair and continuous suction drainage for 3 weeks. (In 2 other cases, not associated with scar rupture, but with rupture due to neglected shoulder presentation, the bladder was similarly torn.) Feeny and Barry<sup>17</sup> comment on this accident to the bladder in rupture of a lower-segment scar, and found 2 similar cases out of a total of 16 scar ruptures (both classical and lower segment). They point out that excessive or vigorous 'wiping down' or 'mobilization' of the bladder and the lower utero-vesical flap during lower-segment Caesarean section results in the formation of scar tissue from the organization of clot in this area of loose cellular tissue. Thus the posterior wall of the bladder becomes adherent to the transverse incision in the lower segment of the uterus, and coincidental violent rupture of both organs is likely to occur if splitting or tearing should begin in the uterine scar in a subsequent pregnancy or labour. These authors therefore advise that downward dissection of the bladder is both unnecessary and inadvisable in lower-segment Caesarean section.

*Rupture associated with obstetric manipulation.* The series included 14 ruptures discovered after an obstetrical manoeuvre or operation. Of these, 4 followed destructive operations, 7 internal version, and 3 forceps delivery.

*Spontaneous rupture.* There were 31 spontaneous ruptures, as follows:

*Transverse lie:* 6 cases. These were all multiparous patients. (There were actually 13 cases in which transverse lie had been

the presentation, but version had been done in 7 and rupture was only discovered after version.)

*Disproportion:* 18 cases. This group included 5 primiparae who had been in labour for 2 days or more with an inadequate pelvis (3 vertex, 1 breech, 1 brow). In 1 case the foetus was hydrocephalic.

*Unknown causes:* 7 cases, ranging between grav. 5 and grav. 10. Of these, 3 gave a history of normal previous labours.

*Duration of labour.* In many of these cases of ruptured uterus the duration of labour had been shorter than one would have expected, but the history of duration is often very unreliable in the Xosa. Nevertheless, one gains the impression that the uterus ruptures more easily in the Bantu than in the European. Gillman *et al.*<sup>18</sup> have produced experimental evidence that rats fed on certain deficiency diets become more liable to uterine rupture, and they think that deficient diet may be of some importance in the production of ruptured uterus in the Bantu.

*Surgical treatment of ruptures.* The policy throughout seems to have been conservation of the uterus wherever possible. The uterus was repaired in 37 cases (65%), but it was not always indicated whether the patient had been sterilized. Hysterectomy was carried out in 17 cases (30%). In 3 cases the patient died before operation. It is interesting to note that none of the scar ruptures resulted in a maternal death. This has also been the finding in other series; Lavery<sup>16</sup> reported no maternal deaths from 25 scar ruptures, and Feeny and Barry<sup>17</sup> 1 maternal death out of 15 scar ruptures. Excluding the scar ruptures in this series, the uncorrected maternal mortality rate from ruptured uterus is 37.7%.

#### LATE INTRA-ABDOMINAL PREGNANCY

There were 7 near-term extra-uterine pregnancies in the series, including 1 set of twins. There was only 1 foetal survivor from the 7 cases.

#### VESICOVAGINAL FISTULA

'Time was when a vesicovaginal fistula all too commonly followed a prolonged or difficult labour.' This statement by Chassar Moir<sup>19</sup> sounds very ironical when applied to our Bantu reserves, for that time still applies in these and other similar regions. In the present series a vesicovaginal fistula was found in 38 patients, 6 before delivery (these were delivered by Caesarean section) and 32 demonstrable after a difficult or prolonged labour; an incidence of 1 in 229 cases. As the majority of mothers—even after a prolonged labour—are discharged on the 3rd postpartum day to vacate a bed, the actual number is probably far higher. One of the commonest obstetrical complications met with here is in the young primipara with an obstructed labour due to an inadequate pelvis. One sees a patient who has been in labour for 2 days or more (some give a history of having had the head on the perineum for 3 days!); she is somewhat distressed and has a secondary inertia; there is usually a very full bladder, and a caput of deceiving appearance appearing at the very oedematous vulva; there is usually no foetal heart audible. Of the vesicovaginal fistulae in this series, 23 were in primiparae. All the cases had a prolonged, obstructed labour. Forceps delivery was done in 13 cases; and craniotomy in 3 cases. In 2 cases the uterus was ruptured.

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## DISCUSSION

It is possibly unjustifiable to leap to conclusions from figures given by one individual, particularly in this series of obstetric cases which is probably only 1/50th of the total number of maternity cases in the Transkei over the same period, and is not a random selection in that all the patients had come into hospital, mainly in emergency. Nevertheless, this small representation of the total maternal and foetal mortality, and the accidents of labour, from one hospital, shows that there is vast room for improvements. These improvements must undoubtedly take the form of many more maternity beds, better antenatal facilities, and education in matters concerning childbirth and the care of the neonate. The maternity services of any given area must surely be as good as its antenatal services. The majority of the mission hospitals in the Transkei have good antenatal clinics, but these are a drop in the ocean. In the Umtata district only, there are antenatal clinics under the Department of Public Health, but there appears to be no collaboration with the hospitals.

One of the main problems appears to be the distribution of the population. It is felt that possible methods of improvement would be as follows: (1) Three or more large antenatal clinics should be provided at the bigger centres where there are hospitals that can deal with maternity cases. (2) Smaller clinics should be provided in all the smaller towns and villages in the Transkei. They should be established either by the provincial authorities or the central government and, besides giving antenatal services, should each have about 6 beds for immediate emergencies. These subsidiary clinics should be managed by one or two full-time midwives under the supervision of either the local district surgeon or other interested practitioner in the village concerned. (3) Flying squads should be established in conjunction with the provincial hospitals in the Transkei, independent of the usual ambulance services and staffed by trained midwives, who should be instructed in the technique of intravenous therapy for use while the patient is being transferred to hospital. Such flying squads have been established in rural areas of Rhodesia<sup>9</sup> with some measure of success.

## SUMMARY AND CONCLUSIONS

1. Some aspects of a survey of 8,701 non-booked obstetric cases are presented from a Transkei hospital, and some

of the problems of maternity services in the reserves are discussed.

2. The maternal and perinatal mortality is high and, in the main, preventable.

3. The incidence of multiple pregnancy (1 in 24 for twins, corrected) is high.

4. All the admissions being of an emergency nature, the incidence of obstetrical operations (Caesarean section, forceps delivery and destructive operations) is higher than in urban areas.

5. The incidence of eclampsia and pre-eclamptic toxæmia, notwithstanding the lack of antenatal care, appears to be lower than in the European, although the figures given are possibly not a true reflection for indicated reasons.

6. The incidence of abnormal presentations generally appears to be higher than in institutions where mainly booked cases are admitted. This applies, too, to the large number of cases of ruptured uterus (57) in the series. The foetal mortality from these complications is exceedingly high. Vesicovaginal fistula due to prolonged obstructed labour is commonly seen.

7. Suggestions are made for improvements in the maternity services in the reserves.

I should like to thank Dr. Hugh Reid, Medical Superintendent of Sir Henry Elliott Hospital, for permission to publish these figures. Also I am grateful to Dr. Dennis Lavery, of Baragwanath Hospital, Johannesburg, for his interest and figures supplied, and to Prof. James T. Louw for his encouragement.

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## DBI (PHENETHYLDIGUANIDE) IN THE TREATMENT OF DIABETES MELLITUS

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The successful debut of the sulphonylureas, carbutamide and tolbutamide as oral hypoglycaemic agents was bound to act as a stimulus to the search for still more effective drugs in the treatment of diabetes mellitus.

In 1957 Ungar *et al.*<sup>1</sup> were able to report on the effectiveness of  $N$ - $\beta$ -phenethyl-formamidinyl-iminourea (also called phenethylguanide or DBI) as a blood-sugar-lowering agent. Further experimental confirmation of this finding was provided by Williams *et al.*<sup>2</sup> and Tyberghein *et al.*<sup>3</sup>, and clinical reports of the successful use of DBI were soon presented by Pomeranz *et al.*<sup>4,5</sup> and Krall *et al.*<sup>6</sup>

All investigators have been unanimous in reporting frequent gastro-intestinal side-effects which have tended to limit the administration of DBI, and one of us<sup>7</sup> reported side-effects in 7 of 10 middle-old-age cases to which DBI was first administered. DBI is a white crystalline, water-soluble substance which is now available in the form of 25 mg. tablets, but was originally provided in both 25 and 50 mg. tablet size.

## MATERIAL AND METHOD

The present investigation was undertaken to determine the effectiveness of DBI in 29 middle-old-age group diabetics

for periods of up to 1 year. They consisted of 25 females and 4 males whose ages varied from 39 to 75 years with an average of 56.3 years. The duration of diabetes varied between 2 and 24 years with an average of 9.8 years.

All the cases were proved diabetics and had been treated previously for varying periods of time with one or more regimens of treatment. Thus 9 cases had been on diet only, 18 on diet plus insulin, and 8 on diet plus tolbutamide.

The initial dosage of the drug was 25 mg. twice daily. This was increased by 25 mg. at weekly intervals or less until effective control was obtained or until side-effects precluded further increase. The maximum dosage administered was 250 mg., but usually no more than 150 mg. daily was given, because gastric irritation became marked above this amount. Insulin, where administered, was decreased slowly once the hypoglycaemic action of DBI had become manifest. It was found that administration during meals was better tolerated than either before or after, and in the later cases this method of administration was adhered to. The drug was always given in divided doses.

Fasting venous blood sugars (method of King and Garner<sup>6</sup>) were initially estimated at least at weekly intervals and at two-weekly intervals after the first month. Complete blood counts and erythrocyte-sedimentation rates were performed at fortnightly intervals and a battery of 12 liver-function tests<sup>8</sup> every 3 months.

Our clinical results have been evaluated as good, fair, or poor according to our previous criteria.<sup>10</sup>

## RESULTS

The hypoglycaemic action of DBI is shown in Fig. 1. In this case 50 mg. of DBI was administered 3 times daily during meals. During the first 24 hours no real hypoglycaemic effect was noted, but the patient became aglycosuric from the fourth day onwards and frequent blood-sugar estimations showed a good hypoglycaemic effect on the tenth day.

### *Diet-only Group*

Nine cases (2 males and 7 females) had previously been on a diet-only regimen. Five were obese and 4 medium in build. They had been known diabetics for periods of 2-13 years and their ages varied from 46 to 75 years. One was under good control, 3 under fair control and 5 under poor control.

The good-control diabetic was included in the hope that the blood sugar could be reduced to entirely normal limits. No such effect was noted, the blood sugars remaining at their previous levels.

Six cases improved to the good category, 4 having previously been under poor control and 2 under fair control. One of these cases, which had previously graduated from the poor to good category, has again deteriorated to the poor group after 10 months. One case improved from the poor to fair category on treatment with tolbutamide, 0.5 g. thrice daily plus 25 mg. of DBI 3 times daily. This case is of interest because neither diet only, nor diet plus tolbutamide, nor diet plus DBI were able to improve diabetic control, and only combined treatment was able to effect some improvement.

The remaining 'fair-control' case was unaffected by treatment.

### *Insulin Group*

Eighteen cases (2 males and 16 females) had previously been treated with insulin. Of these 11 were obese and 7 medium in build. They had been known diabetics for periods ranging from 5 to 24 years and their ages varied between 39 and 69 years. Control was good in 1, fair in 5 and poor in 12 cases. The dosage of insulin varied between 15 and 90 units daily. In one case DBI replaced the 15 units of protamine zinc insulin previously required to keep the diabetes under good control, while in another improved control (from fair to good) occurred while replacing the whole dosage of 10 units protamine zinc insulin. In 2 further cases improvement from poor to good control was achieved on DBI together with insulin, the latter being reduced by 10 units (Lente insulin 30-20 units and 35-25 units). Three cases improved from poor to fair control on DBI plus insulin, the daily dosage of the latter being 7-10 units less than previously (NPH 27-20 units, Lente 30-20 units, NPH 20-10 units). The remaining cases stayed in the poor category, but in 2 of these it was possible to reduce insulin by 20 and 30 units (70 to 50 and 90 to 60 units of Lente insulin) without producing any increase in blood sugar. Withdrawal of DBI was a signal for the return of insulin requirement to its previous level.

In 3 cases the side-effects were so severe as to necessitate abandonment of DBI treatment. One case which had failed on a regime of 40 units of Lente insulin plus 50 mg. of DBI thrice daily, improved to fair control when tolbutamide was substituted for both these drugs. The patient, a female aged 60 years, had been diabetic for 10 years and was originally under poor control on treatment with diet plus 40 units of Lente insulin. Contrariwise, a female aged 51 years who had been diabetic for 9 years and had been poorly controlled on both Lente insulin, 35 units, and this together with either tolbutamide or chlorpropamide, improved to the fair category on 25 units of Lente plus 75 mg. of DBI daily. Four poor-category cases were labile diabetics who had experienced both hypo- and hyperglycaemic coma. Administration of DBI did not in any way alter their lability, and they remained poorly controlled.

### **Tolbutamide Group**

Eight cases (all females) had previously been treated unsuccessfully with tolbutamide. Their ages ranged from 41 to 69 years and the duration of diabetes from 2 to 19 years. Three were obese and 5 were medium in build. Transfer to DBI alone was sufficient to improve control to good in 1 case and fair in another. A further case improved to fair when DBI 75 mg. daily, was added to tolbutamide, 0.5 g., 3 times daily.

Two cases improved to the fair category on DBI plus insulin (20 and 10 units respectively), but showed no improvement on DBI alone.

The remaining 3 cases showed no alteration in control when switched to DBI therapy.

### *Side-effects*

Twenty-one cases experienced side-effects. These were so severe in 6 cases as to necessitate discontinuation of treatment.

The side-effects noted were as follows: Dry mouth in 3 cases, bitter taste in 4 cases, abdominal discomfort and cramp in 3 cases, abdominal distention in 2 cases, nausea

in 7 cases, vomiting in 4 cases, hiccup in 1 case, diarrhoea in 4 cases, faintness and dizziness (not related to hypoglycaemia) in 8 cases, malaise in 4 cases, headaches in 3 cases, and loss of weight in 1 case.

In 6 cases the side-effects gradually disappeared despite a constant dosage. In 4 other cases reduction in dosage alleviated the side-effects, and in 1 other case these disappeared when dosage was reduced and did not recur when DBI was increased to its original dosage after a period of 1 month. The remainder were able to continue treatment in spite of side-effects.

#### Laboratory Investigations

Blood counts, erythrocyte-sedimentation rates and liver-function tests did not show any significant changes during the period of this trial.

#### DISCUSSION

DBI has a definite hypoglycaemic action which was found to occur after the administration of the first dose in some cases, but only after continued administration over a period of several days in others. This delayed type of reaction is shown in Fig. 1. Single doses of the drug have shown a hypoglycaemic response in 4 hours, maximal at 6 hours, and almost disappeared in 10 hours.<sup>11</sup>

Experimental studies have suggested that DBI lowers blood-sugar levels by promoting anaerobic glycolysis with increased glucose utilization by the tissue, and by causing decreased gluconeogenesis with decreased output of glucose from the liver. In contradistinction to insulin, DBI leads to a decreased muscle glycogen concentration.<sup>12,13</sup> While it produces a definite hypoglycaemia in depancreatized and in alloxanized animals,<sup>1</sup> it has a much greater effect in those in which the pancreas is present.<sup>12</sup>

The clinical studies reported here show that DBI has a mild blood-sugar lowering effect. Six out of 9 cases previously on a 'diet only' regime graduated to the good category while on DBI. Insulin-treated cases did not respond so well. In only 2 of these was it possible for DBI to replace the total 10 and 15 units of insulin which were required to control the diabetes effectively. Partial replacement of insulin by DBI was possible in a further 7 cases. Thus, 2 cases improved from poor to good and 3 from poor to fair while insulin requirement was reduced by not more than 10 units. Eight cases remained under poor control, but insulin requirement was 20 and 30 units less, while the blood sugar remained constant.

Thus, the maximum amount of insulin replaced, in this series, was 30 units. The effect of DBI must, therefore, be considered to be mild and owing to side-effects it was found impossible to continue treatment with dosages larger than 150 mg. daily; with this dosage no marked hypoglycaemic symptoms were noted.

Twenty-one of the 29 cases experienced side-effects—a high incidence for a drug which must be used over a prolonged period. In 6 cases these effects were so severe as to warrant discontinuation of treatment. The side-effects were mainly gastro-intestinal, but patients often felt depressed and 'miserable' as a result.

While reduction in dosage or the passage of time were sufficient to allow these symptoms to disappear in 10 cases, the frequent side-effects suggested that the drug could have only a limited use. On the other hand no haematologic, hepatic or renal complications were found in any patient in this group of cases treated for periods up to 1 year. Ketonuria has been reported coincidentally with the elimination of glycosuria, but this was not noted in our series. This

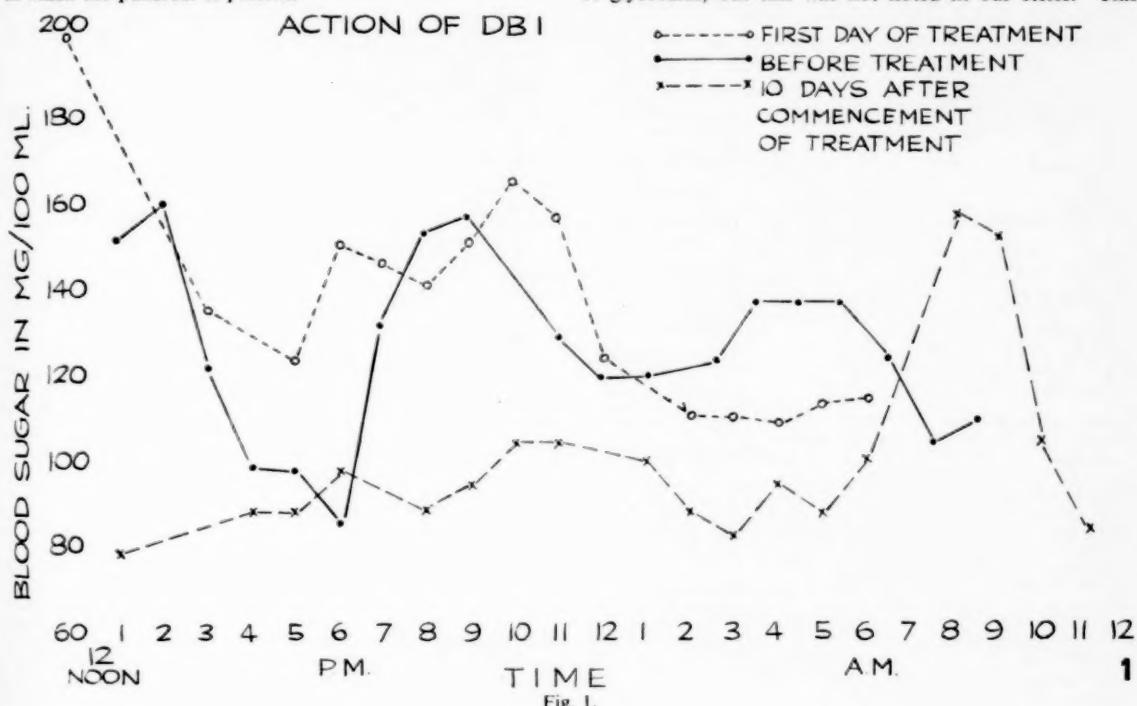


Fig. 1.

type of ketonuria has been referred to as 'starvation ketonuria' and can be eliminated by reduction in DBI dosage or by a liberal intake of carbohydrate. Hall *et al.*<sup>11</sup> have suggested that carbohydrate oxidation is not completely rectified even when the drug has reduced the blood-sugar level to normal.

It has been suggested that one of the uses of the drug is control of the labile diabetic by means of DBI and insulin.<sup>6</sup> In the 4 cases studied no such stabilizing effect was noted, the lability being uninfluenced.

In 1 of 8 cases where tolbutamide had failed, DBI was able to improve control to such an extent that the case could be placed in the good category. DBI plus insulin was able to take over effective control in several other cases, but a slightly larger dose of insulin alone could have done this.

Where tolbutamide alone was ineffective, a combination of DBI with tolbutamide improved control to the fair category in 1 case. This is one use of DBI which merits further investigation in the patient who would prefer oral diabetic therapy.

#### CONCLUSIONS

Our experience in a middle-old-age group of diabetics points to DBI being a mild hypoglycaemic agent which is prone to give rise to side-effects, mainly gastro-intestinal in type. While reduction of blood sugar to normal limits is possible in mild cases, DBI alone is unable to control the severe diabetic. In the latter type a combination of DBI and insulin can allow of smaller doses of insulin being administered, but in most cases this would have no advantage over giving larger doses of insulin alone. We have been unable to substantiate the claim that DBI is useful in stabilizing labile diabetes. The possibility, however, exists that a combination of tolbutamide or chlorpropamide with DBI may improve control in some stable cases, and particularly where control deteriorates after initial successful stabilization with tolbutamide. It is apparent that DBI has only a limited use in the treatment of diabetes.

#### UNIVERSITY NEWS : UNIVERSITEITSNUUS

##### UNIVERSITEIT VAN PRETORIA

By die Promosieplegtigheid op 18 en 19 Maart 1960 is die volgende grade en medaljes toegeken:

*Graad van Baccalaureus in Geneeskunde en Snykunde*

Bedford, Michael Charles  
Booyens, Frederik Jacobus Zacharias  
Botha, Cyril Vincent  
Botha, Johan  
Bouwer, Ernest Louwrens  
Brody, Hubrecht van Dalsen  
Buitendag, Gert Stephanus

Christ, Helmut Horst  
Cloeke, Adéo (met lof in Kindergeneeskunde)

De Beer, Marius Gerard  
De Kock, Michiel Johannes  
De Müelenare, Luc Georges Alice Gustave Rufin  
De Villiers, Theodore Heinrich

Erlank, Johann Duncker

Ferreira, Augusto Franciso  
Fichardt, John Barry (met lof in Obstetric en Ginekologie)  
Finestone, Abe

Griessel, Petrus Johannes Casparus  
Grobbelaar, Johannes Jacobus  
Groenewald, Johannes Hendrik  
Groenewald, Johannes Wilhelmus

Hack, Maureen (met lof in Kindergeneeskunde)  
Hattingh, Colombé Madeleine  
Heuer, George Klee  
Hills, Edwin Hennenman  
Hugo, Paulina Maria

Jacobs, Christina Johanna  
Jooste, Jacobus Andries  
Joubert, Petrus Gerhardus (met lof in Radiologie)

Kotzé, Johannes van Zyl  
Kriel, Johannes Nicolaas  
Le Roux, Daniel Bartholomeus Hugo  
Lindeque, Petrus Johannes  
Louw, Jacobus Adriaan  
Lups, Anna Hindrika Jacoba

Malan, Petrus Jacobus  
Myburgh, Dirk Petrus

Nell, John Hay

Ockerse, Albert Bekker

Pio, Abraham Hendrik Ludolf  
Pretorius, Francois Johannes

Rossouw, Alewyn Petrus

Saayman, John Henry Moodie  
Scholtz, Hermanus Bernhardus  
Seele, Rosemarie Ruth Cathrina Clara  
Smit, Bérend Jakobus  
Snyman, Philippus Johannes Nicolaas Horn  
Steyn, Phillipus Johannes (met lof in Interna  
Geneeskunde, Obstetrie en Ginekologie  
en Kindergeneeskunde)  
Stronkhorst, Johannes Hendrikus

Theron, David Francois

#### SUMMARY

1. Twenty-nine diabetics in the middle-old-age group were treated with phenethylidiguanide (DBI) for periods up to 1 year.

2. Side-effects, mainly gastro-intestinal, were noted in 21 cases. In 6 cases these side-effects necessitated discontinuation of treatment.

3. DBI was able to replace a maximum of 30 units of insulin.

4. DBI alone was unable to control severe diabetes although reduction in insulin dosage was possible by means of combined therapy.

5. In 4 cases of labile diabetes DBI did not exert any stabilizing effect.

6. The suggestion is made that combined therapy with other oral anti-diabetic drugs may prove useful.

7. DBI has only a limited use in the treatment of diabetes mellitus.

We wish to thank the U.S. Vitamin and Pharmaceutical Corporation for generous supplies of DBI, and Sister D. E. Maxwell, Dr. S. Kramer and the Photographic Department of the Department of Medicine, University of the Witwatersrand, for their kind cooperation.

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Van Niekerk, Willem Abraham (met lof in  
Interne Geneeskunde, en Obstetrie en  
Ginekologie)

Van Rensburg, Anton Jansen  
Van Riet, Helligaard Steyn  
Van Staden, Martinus Jacobus  
Van Wyk, Johannes Adriaan Louw

Van Wyneersch, Herman  
Webb, Edward Cottington  
Wessels, Wessel Hendrik  
Wiesner, Helena

*Graad van Dokter in Geneeskunde*

Jacobs, Edmund Leonardus (Radioterapie). *Proefskerif*: 'n Vergelykende studie van die etiologie van bestralingsiekte by die Bantoe en die Blanke na behandeling met ioniserende strale.'

Gräbe, Roland Peter (Chirurgie-Ortopedie)  
Joubert, Andy (Oogheelkunde)  
Oberholster, Jannie Gerhardus (Anestesiologie)

Oosthuizen, Johannes Gerhardus Marthinus (Interne Geneeskunde)  
Rodseth, Ivor Conrad (Anestesiologie) (Met  
lof)

Staples, Warwick George (Anestesiologie)  
Van Wyk, Gerhardus Petrus (Chirurgie)  
(Met lof)

(Vakke tussen hakies dui besondere-studierigting aan.)

*Tweejarige Diploma in Radiografie*

Bester, Jacoba Maria  
Botha, Ena  
Dannhauser, Maria  
Du Plooy, Annie Petronella  
Esterhuyzen, Charlotte Henriette (met lof)

Filmalter, Jacoba Johanna (met lof)  
 Fogarty, Henry George  
Fourie, Magdalena Elizabeth  
Grobler, Anna Gertruida  
Hopkins, Marina

Steynberg, Mariana Sidomie  
Truter, Barbara Wilhelmina  
Wessels, Anna Catharina

*Doktorsgrade*

D.Sc. Pepler, Wessels Johannes, B.Sc., M.D.

*L. J. Te Groen-Medalje vir Obstetrie en Ginekologie*

Vir die finale jaar M.B., Ch.B.-student wat die beste in die vakke Obstetrie en Ginekologie presteer het: Fichardt, John Barry.

*Protea Holdings-Pryse*

(i) Vir die beste finale jaar M.B., Ch.B.-student in die vak Radiologie: Joubert, Petrus Gerhardus.

(ii) Vir die twee beste finale jaar M.B., Ch.B.-studente in die vak Interne Geneeskunde: Steyn, Phillipus Johannes, Van Niekerk Willem Abraham.

(iii) Vir die beste finale jaar student in die Diplomakursus in Radiografie: Esterhuyzen, Charlotte Henriette.

**OFFICIAL ANNOUNCEMENT : AMPTELIKE AANKONDIGING**

**MEDICAL AID SOCIETIES**

The following new medical aid societies were approved by Federal Council at its meeting held in Pretoria on 2-5 March 1960. This approval takes effect on 1 April 1960.

1. Goldby, Panchaud & Webber Medical Benefit Fund, P.O. Box 1172, Johannesburg.
2. National Trading Medical Aid Society, P.O. Box 2762, Johannesburg.
3. Sydmore Sick Benefit Society, P.O. Box 8851, Johannesburg.

**MEDICAL BENEFIT SOCIETIES WHICH ALLOW FREE CHOICE OF DOCTOR FOR SPECIALIST SERVICES ONLY**

Western Province Building and Allied Trades Sick Fund, P.O. Box 2013, Cape Town.

A complete list of approved medical aid societies will be published in the next issue of the *Journal*.

L. M. Marchand  
Associate Secretary

28-31 Plaza Building  
Bank Lane  
Pretoria  
23 March 1960

**MEDIESE HULPVERENIGINGS**

Op sy vergadering van 3-5 Maart 1960 te Pretoria gehou, het die Federale Raad onderstaande nuwe mediese hulpverenigings goedkeur. Hierdie goedkeuring tree in werking op 1 April 1960.

1. Goldby, Panchaud & Webber Medical Benefit Fund, Posbus 1172, Johannesburg.
2. National Trading Medical Aid Society, Posbus 2762, Johannesburg.
3. Sydmore Sick Benefit Society, Posbus 8851, Johannesburg.

**MEDIESE BYSTANDSVERENIGINGS WAT VRY KEUSE VAN DOKTER ALLEEN VIR SPESIALISTEDIENSTE TOELAAT**

Western Province Building and Allied Trades Sick Fund, Posbus 2013, Kaapstad.

'n Volledige lys van goedgekeurde mediese hulpverenigings sal in die volgende uitgawe van die *Tydskrif* verskyn.

L. M. Marchand  
Medesekretaris

Plazebou 28-31  
Banklaan  
Pretoria  
23 Maart 1960

**PASSING EVENTS : IN DIE VERBYGAAN**

*Edenvale Hospital, Johannesburg.* The medical staff of this Hospital are holding clinical-discussion meetings every 2 months. The next meeting will be held on Thursday 21 April at 8.15 p.m. at the Hospital. Dr. J. R. Brink will speak on 'Dental emergencies which may affect the medical practitioner' and Dr. I. Targowksy will speak on 'The skin as an organ'. Clinical cases will also be shown. All those interested are invited to attend this meeting.

*College of General Practitioners, Natal Coastal Faculty.* This Faculty was officially launched at an inaugural meeting held in Durban on 8 March 1960, which was attended by the 11 Foundation Members. The following Committee members were elected—

Chairman: Dr. E. W. S. Deale, Vice-Chairman: Dr. D. Martyn, Hon. Secretary: Dr. M. B. Asherson (53 Medical Centre, Field Street, Durban), Hon. Treasurer: Dr. L. Wolfowitz; Members: Drs. M. Byala, M. Berkowitz, P. H. Dalgleish, M. D. Messent, B. Morris, R. Mundy and F. Stern. Dr. E. W. S. Deale will be the official representative to the British College of General Practitioners.

*Dr. and Mrs. Louis Schrire* have left Cape Town to attend the First Congress of the European Society of Ophthalmology in Athens on 18 - 22 April 1960. They will also visit various ophthalmological clinics on the Continent and in the UK during their 3½-month overseas visit.

*The Society for Endocrinology, Metabolism and Diabetes of Southern Africa* has been formed with the objects of advancing the study of disorders in these fields, and of affiliating with other similar societies or federations. Affiliation is planned with any lay organization or similar society which may be formed in the future.

Active membership is open to graduates of approved medical schools and other scientists who possess appropriate qualifications and interests. Provision exists for associate members who, although ineligible for active membership, may be interested in the objectives and activities of the Society.

The Committee of the Society consists of—President: Prof. J. F. Brock (Cape Town), Chairman: Dr. W. P. U. Jackson (Cape Town), Vice-Chairman: Dr. M. Schneider (Johannesburg), Hon. Secretary/Treasurer: Dr. R. Hoffenberg (Cape Town), Executive members: Drs. B. Senior (Johannesburg), G. D. Campbell (Durban), J. D. Meyer (Bloemfontein), and C. L. Wicht (Bellville, Cape).

Application for membership should be submitted to the Hon. Secretary, c/o Department of Medicine, Groote Schuur Hospital, Observatory, Cape, and copies of the full Constitution will be sent to all members.

The Society will hold its first meeting during the Second Scientific Congress of the Association of Physicians of South Africa (M.A.S.A.) at the University of the Witwatersrand, Johannesburg, on 6-9 July 1960. One morning will be devoted to papers on thyroid disease and diabetes and two symposia are to be held during the morning. A panel will answer questions submitted by the audience in these two fields.

\* \* \*

*University of Cape Town and Association of Surgeons of South Africa (M.A.S.A.) Joint Lectures.* The next lecture in this series will be held on Wednesday 13 April at 5.30 p.m. in the E-floor Lecture Theatre, Groote Schuur Hospital, Observatory, Cape. Mr. J. E. Gasson will speak on 'Surgery of the common bile duct'. All members of the Medical Association are welcome.

## NEW PREPARATIONS AND APPLIANCES : NUWE PREPAREER EN TOESTELLE

### 'COOMASSIE' BLUE (MEDICAL) SOLUTION

Responding to requests by cardiologists, I.C.I. South Africa (Pharmaceuticals) Ltd. has carried out special research into the possibility of producing a reliable dye, free from the disadvantages of Evans' Blue for use in the dye-dilution technique in the investigation of cardiovascular function. 'Coomassie' Blue (Medical), which has resulted from this research, is the sodium salt of anilino-hydroxyazonaphthalene sulphonate acid, which is easily soluble in water and saline and is now available for sale packed ready for use in 5 ml. ampoules in solutions of 2% and 4% concentration.

The advantages of 'Coomassie' Blue (Medical) Solution are briefly stated as follows:

1. Extremely low toxicity. Large doses can be given and repeated many times daily. There is no need to maintain controlled oxygenation of the blood as there is, for example, with Evans' Blue.
2. It is well excreted and does not turn the skin blue. Thus, patients are not worried and no confusion with cyanosis arises.
3. 'Coomassie' Blue is at first entirely retained in the vascular system, and is disposed of at a rate which is optimum for the purposes required. Other dyes either diffuse into the tissue fluid too quickly or are too rapidly or too slowly degraded or excreted.
4. Concentrations of the dye in blood and plasma can be readily and accurately determined.
5. 'Coomassie' Blue is easily soluble in water and saline. Solutions are perfectly stable. The drug is, therefore, presented in ampoules, ready for immediate use.

This diagnostic reagent is packed in boxes containing 10 x 5 ml. ampoules in both the 2% and 4% concentration. Supplies and further information are available from I.C.I. South Africa (Pharmaceuticals) Ltd., P.O. Box 11270, Johannesburg.

### OPHTHOCORT

Parke, Davis Laboratories (Pty.) Ltd., introduce a new eye ointment, Ophthocort, which provides strong broad-spectrum antibacterial action together with anti-inflammatory activity, for the topical treatment of ocular inflammation, and supply the following information:

**Description.** Ophthocort contains 1% chloromycetin (chloramphenicol, Parke, Davis), 0.5% hydrocortisone acetate and 5,000 units of polymyxin B per g. in a special petrolatum base. Ophtho-

*South African National Tuberculosis Association.* Two new SANTA tuberculosis-treatment centres were officially opened during March 1960. The first one is the Margery Parkes SANTA Centre at Graaff Reinet, which will accommodate 120 Coloured patients and is named after the Chairman of the local SANTA Branch.

The Helen Franz SANTA Centre, Bochum, Northern Transvaal, will accommodate 400 Bantu tuberculosis patients. This centre was originally a leper hospital founded by Lutheran missionaries, but since the accommodation is no longer needed for lepers the Government has handed the 200-bed institution over to SANTA for use as a tuberculosis institution. An additional 200 beds have now been added to make this the second largest SANTA centre in South Africa (the East Rand SANTA Centre at Modder 'B' has 750 beds).

\* \* \*

*South African Paediatric Association (M.A.S.A.) Cape Town Sub-Group.* Contrary to the information published in the *Journal of 26 March (34, 266)* the next meeting of this Sub-Group will not be held on 12 April, since this is a Jewish Holiday, but will be held on Tuesday 19 April in the Lecture Theatre, Red Cross War Memorial Children's Hospital, Rondebosch, Cape, at 8.15 p.m. Dr. R. Hoffenberg will speak on 'Recent trends in endocrinology'. Visitors will be welcome.

The Annual General Meeting of the Sub-Group will also be held during this evening.

\* \* \*

*Dermatological Sub-Group (M.A.S.A.).* The next national meeting of this Sub-Group will be held in Cape Town on 16 and 17 April 1960. Lectures, clinical demonstrations and social functions have been arranged. Prof. Felix Sager, of Jerusalem, will attend the meeting as guest-of-honour. Further information may be obtained from the Hon. Organizing Secretaries—Dr. J. Jacobson, National Mutual Buildings, Church Square, and Dr. S. Stein, 602 Medical Centre, Cape Town.

cort acts by controlling inflammation whether caused by irritation, trauma, infection, or specific allergens, and thus wards off the danger of excessive vascularization and scarring.

**Indications.** Because of its proved usefulness against a wide range of pathogens and effective penetration following topical application, chloromycetin has been used extensively against ocular infections. Although the principal pathogenic flora of the eye is staphylococcal, gram-negative organisms are being found in increasing numbers<sup>1</sup> and polymyxin B is particularly active against these new invaders.

It has been statistically derived by Waisbren and Streitzer<sup>2,3</sup> that chloromycetin and polymyxin B, the combination provided in Ophthocort, is potentially one of the most effective preparations for suppressing cultures of mixed bacteria, including staphylococci, proteus, *Pseudomonas aeruginosa* and other *Pseudomonas* species, *E. coli*, and *A. aerogenes*.

The use of steroid therapy for inflammatory processes involving the eye has been widely discussed, and it is generally agreed that such treatment is of conspicuous value in restoring the normal appearance of the eye and adding to the comfort of the patient. The inclusion of hydrocortisone acetate in Ophthocort provides the appropriate degree of steroid therapy in ocular inflammations.

It is important if a good therapeutic result is to be obtained in ocular diseases to attack the invading organisms hard as well as promptly. In the use of Ophthocort the problem of emergence of resistant strains is radically reduced by the prompt antibiotic action of chloromycetin and polymyxin B.

**Dosage and administration.** For viral inflammation and non-viral iridocyclitis, with or without ulcer, involving the eye and adnexa, treatment should be directed towards eradicating the aetiologic agent and controlling the inflammatory response of these highly sensitive tissues. Although marked variation is seen both in patients and pathogens, the physician may consider the following suggested dosage schedule in outlining a course of therapy:

First 24-48 hours—Ophthocort should be applied to the affected eye 2-4 times daily. Thereafter, continue until the eye has appeared normal for 48 hours.

Physicians are reminded that treatment with Ophthocort should not be abruptly stopped, since relapse is more likely to occur on

sudden cessation of therapy than when therapy is tapered slowly to conclusion. Should relapse occur, the schedule of treatment already outlined should be resumed.

When hydrocortisone is applied locally in treating bacterial diseases of the eye, care must be exercised to make sure the condition is not actually progressing while the external appearance improves. The antibacterial action of chloromycetin and polymyxin B reduces this probability to a minimum; nevertheless,

as every physician knows, there is no substitute for careful observation of the patient.

**Packing:** Ophthocort Ophthalmic Ointment is supplied in  $\frac{1}{2}$  oz. tubes containing 1% chloromycetin (chloramphenicol, Parke, Davis), 0.5% hydrocortisone acetate and 5,000 units of polymyxin B sulphate per g.

1. Smith, C. H. (1955): Eye, Ear, Nose Thr. Monthly, 34, 580.
2. Waibren, B. A. and Streitzer, C. L. (1956-1957): Antibiot. Ann., p. 648.
3. *Idem* (1957): Arch. Intern. Med., 99, 744.

## BOOK REVIEWS : BOEKBESPREKINGS

### EXCRETION

**Handbuch der allgemeinen Pathologie.** Herausgegeben von F. Büchner, E. Letterer, F. Roulet. Band V/2. Teil. Hilfsmethoden des Stoffwechsels. Pp. xi + 689. 164 Abbildungen. Ladenpreis: Ganzleinen DM 178.00. Bei Verpflichtung zur Abnahme des gesamten Handbuchs Subskriptionspreis DM 142.40. Berlin, Göttingen, Heidelberg: Springer Verlag. 1959.

This work continues the German tradition of reference books and gives a comprehensive survey of general pathology. The present volume, the fifth issued since 1955, deals with excretion. The different subjects are discussed by authors with specialized knowledge, viz.: Functional pathology of renal excretion, by Sarre and Gayer; Morbid anatomy of renal excretion, by Randerath and Bohle; Physiology of excretion in liver, gall-bladder, bile-ducts and colon, by Grogg and Staub; Pathology of excretion in liver and colon, by Kühn; Excretion in lungs, by Goebel; and Excretions through the skin, by Marchionini and Spier. Every chapter has its own extensive bibliography, including articles up to 1956 and 1957. The sections on renal and hepatic excretion are of a high standard, and so is the chapter on skin pathology. Sarre and Gayer give a good account of renal excretion, which is completed by the thorough contribution by Randerath and Bohle. Kühn's treatise about excretion in the liver seems specially interesting because of his unusual but useful classification of jaundice. He also mentions Minkowski's old theory of parapadesis and discusses the role of the destruction of hepatic lobules and necroses. Even in cases of acute hepatitis and acute yellow atrophy Kühn thinks parapadesis more important in the pathogenesis of icterus than the anatomical changes. This book should be of great value to physiologists and pathologists, particularly as it is written in rather easy German. H.W.W.

### NUTRITION AND DIETETICS

**Human Nutrition and Dietetics.** By Sir Stanley Davidson, B.A. (Cantab.), M.D., F.R.C.P. (Edin.), F.R.C.P. (Lond.), M.D. (Oslo), A. P. Meiklejohn, M.A., B.Sc., D.M. (Oxon.), M.R.C.P. (Lond.) and R. Passmore, M.A., D.M. (Oxon.). Pp. xii + 844. Illustrations. 84s. net + 3s. 4d. postage abroad. Edinburgh and London: E. & S. Livingstone Ltd. 1959.

The 3 authors from the Edinburgh school have produced an excellent survey of the subject. They have concentrated on human nutrition and relevant experimental and clinical data. There is an admirable absence of unwarranted extrapolation from research in animals. The bibliography has been carefully chosen, and it is gratifying to see South African workers well represented.

The physiology of nutrition and primary nutritional diseases (including obesity) is covered in 350 pages. The rest of the book deals with food, dietetics and nutrition in public health. This comprehensive approach has resulted in a rather long book, but it is lucid and interesting throughout.

There is a real need for such a book. It should provide valuable additional reading for medical students, who may be familiar with the senior author's text-book of medicine. Doctors will be glad to know of an up-to-date and practical review of nutrition. Dieticians will probably find the book invaluable. Its simple style and avoidance of very specialized terminology makes it accessible to other readers as well. A.S.T.

### TUMOURS OF THE BLADDER

**Tumors of the Urinary Bladder.** By N. B. Friedman, M.D. and James E. Ash, M.D. Pp. 82. 86 figures. \$1.00. Washington: Armed Forces Institute of Pathology. 1959.

The series of atlases on tumour pathology continues its successful presentations in Fascicle 31a, which describes the tumours of the urinary bladder.

The astonishing excellence of the microphotographic printing is in itself a sufficient recommendation for all medical training institutions to insist upon the acquisition of this atlas. In addition, the publication achieves a desirable balance of pictorial and crisply written information on diagnostic, therapeutic and prognostic problems which is of interest to clinical pathologists, and the atlas is accordingly recommended to them also.

Over half the contents refer to the tumours derived from the transitional epithelium (urothelium), the rest being an account of the surprising variety of glandular, muscular, lymphoid and rarer tumours of the bladder and those conditions which may be mistaken for neoplasia.

A mild criticism relates to the limited pictorial account of the difficulty in distinguishing between some of the papillomas and papillary carcinomas, a difficulty which is specifically discussed in the text.

The publication emphasizes that the clinical pathologist is commonly not able to give a confident opinion on biopsy material owing to poor sampling on the part of the urologist. R.S.

### SUPERVOLTAGE RADIOTHERAPY

**Roentgens, rads, and Riddles.** A Symposium on Supervoltage Radiation Therapy held at the Medical Division, Oak Ridge Institute of Nuclear Studies, 15-18 July 1956. Edited by M. Friedman, M.D., M. Bruer, M.D. and E. Anderson. Pp. xv. + 495. Illustrations. \$3.50. For sale by the Superintendent of Documents, Government Printing Office, Washington 25, D.C., USA. 1959.

One glance at the list of contributions and the captions of the various chapters of the different sections of this symposium arising from Oak Ridge is an adequate indication that the volume comprises an immense amount of authoritative information.

Each chapter—and there are 69, beautifully illustrated—is produced by a recognized authority in the particular subject from different parts of the world; each section is rounded off by a résumé of the discussion, and the whole work is brought to an end by the inclusion of three valuable appendices and an extensive bibliography.

It would be invidious to single out any chapter or section for special mention. Each has its own appeal, whether it is concerned with dosimetry, machine design, moving-field therapy, clinical radiobiology, or what not.

The volume is highly recommended to those interested in supervoltage therapy. J.M.G.

### VASCULAR DISEASE

**Color Atlas and Management of Vascular Disease.** By William T. Foley, M.D., F.A.C.P., and Irving S. Wright, M.D., F.A.C.P. Pp. xi + 170. 194 illustrations. \$18.00. New York: Appleton-Century-Crofts, Inc. 1959.

In recent years direct arterial surgery has come well into the limelight, and the results from surgical management of obliterative disease are often quite dramatic, and certainly very much better than anything one could formerly offer the patient. In this atmosphere, and with the ever-increasing number of articles and monograms on the subject, one is liable to lose sight of the fact that a large percentage of patients with arterial disease do not qualify for direct surgical techniques, but nevertheless can be greatly benefited by conservative measures.

This little book, therefore, fulfils a most useful function, for it is devoted entirely to the conservative management of arterial

diseases. Throughout the book the various diseases are described briefly, and then illustrated by short case histories and most excellent colour photographs. The methods employed are based on sound reasoning and common sense, and they should most certainly be applied in all cases of arterial disease, whether they have been surgically treated or not.

The book can be strongly recommended to all medical men interested in this type of work. To general practitioners it will be particularly valuable.

W.G.S.

#### SURGICAL HOUSEMAN'S GUIDE

*Surgical Service Guide*. By Louis T. Palumbo, M.D., M.S., F.A.C.S. Pp. 208. Illustrations. \$6.00. Chicago: Year Book Publishers, Inc. 1959.

This concise little book could well have been called 'Aids to the Surgical Houseman'. It was primarily written for the residents on the author's own unit, where it served a definite purpose, because it is really a résumé of his own notes and instructions to them, on every aspect of the pre- and post-operative management of the surgical patient. He covers surgery, orthopaedics, gynaecology and paediatric surgery, all in 208 pages, and his orders are laid out in tabular form. This leads to a certain amount of dogmatism, not universally acceptable, but which accords with the positive nature of this book. Many major aspects of surgery are rather summarily dealt with; the subject of 'fluids and electrolytes', for instance, takes up only 2 pages.

The management of the more minor surgical cases is well covered, and from this point of view this book should be of great value to the newly-qualified houseman, particularly in an institution where there is no senior resident available. Apart from this, it will have limited appeal.

J.G.

#### SPONTANEOUS ABORTIONS AND MENSTRUAL DISORDERS

*Clinical Obstetrics and Gynaecology*. Vol. 2, No. 1. March 1959. *Spontaneous Abortion*. Edited by D. N. Danforth, M.D. *Menstrual Disorders*. Edited by C. F. Fluhmann, M.D. Pp. 256. Illustrations. Published 4 times a year. Subscription \$18.00 per year. New York: Paul B. Hoeber, Inc. 1959.

In this volume two interesting and problematic subjects, viz. abortion and menstrual disorders, are discussed in great detail.

The section on abortion is extremely well written and no important aspect has been omitted. A whole chapter is given to cervical incompetence and its treatment. The indications for the Shirodkar operation, which is so much misused today, is discussed in detail. Not enough, however, has been said about the modern use of progesterone in doses of 100 mg. a day. Stress has also not been placed on the virilizing effect of long-continued treatment with progesterone in high doses.

The symposium on menstrual disorders is well worth reading and many aspects not known to the average gynaecologist and practitioner are mentioned. The chapter on the determination of basal body temperature in the management of menstrual disorders is extremely interesting and reminds us of this simple method in diagnosis and treatment. There are, however, so many writers and different opinions that the subject is not yet simplified enough for the busy consultant and practitioner.

On the whole the high standard of this periodical series has been maintained, and I can only conclude with the statement that these volumes are valuable additions to our medical libraries.

R.W.A.N.

#### PSYCHO-ANALYSIS

*Psychoanalysis of Today*. By S. Nacht. Pp. vii + 228. \$5.75. New York and London: Grune & Stratton, Inc. 1959.

This is not a text-book or a short outline of psycho-analysis in theory or practice, as might be inferred from the title, yet it has something of this character. What the editor has done is to choose and condense 8 of the 16 chapters of the first 2 volumes of a collection of studies published by the Institute of Psycho-analysis of Paris. The level of success in condensation varies greatly. The paper on 'Indications and contra-indications for psycho-analysis', based largely on Glover, is a model of clarity, but some papers suffer so much from compression that they are almost unintelligible.

Four papers deal largely with technical considerations, viz.

'Clinical analysis', 'Psycho-analytic therapy', 'Psycho-analysis of children', and 'Psycho-analytical theory of the psychoses'. Three deal with the general relation of psycho-analysis to medicine, neurobiology, and sociology. These large subjects can of necessity be dealt with only briefly in single articles, and the lack of any bibliography is therefore a serious omission. The book is uneven in quality, but some of the modern trends are well indicated.

W.A.S.

#### TREATMENT OF CANCER

*Treatment of Cancer in Clinical Practice*. Edited by P. B. Kunkler, M.A., M.D. (Cantab.), M.R.C.P., F.F.R. and A. J. H. Raines, M.S. (Lond.), F.R.C.S. Pp. xvi + 821. Illustrations. 100s. net + 5s. postage abroad. Edinburgh and London: E. & S. Livingstone Ltd. 1959.

The editors state in the preface to this book that it 'is an attempt to breach some of the gaps which have threatened to develop between physicians, surgeons, gynaecologists and radiotherapists as a result of the inevitable specialization which follows growth in the body of knowledge'. This is exactly what is accomplished in the book, which is written by eminent British surgeons, radiotherapists and gynaecologists.

In the first 8 chapters the treatment of cancer in general is discussed. There is a chapter on the approach to surgical methods and technique. In this chapter the principles of radical operations for cancer, as well as smaller details of technique, e.g. the different methods of estimating the blood loss at operation, are discussed. There are chapters on the physics, principles and methods of radiotherapy, written in a concise and lucid way. Supervoltage therapy and the use of radio-active isotopes are discussed. There are up-to-date chapters on aspects of the chemotherapy of malignant disease and the hormonal control of cancer. The chapter which deals with the presentation of results and statistics will be valuable to those planning clinical series of trials.

The greater part of the book deals with the known malignant diseases of organs and regions, e.g. the skin, the eye and orbit, the salivary glands, the blood, the tonsils and nasopharynx, and the reticuloses. The indications and contra-indications for surgery and radiotherapy and the results of treatment are discussed. Methods and techniques of radiotherapy are described in detail and so are the surgical procedures, including not only radical operations for removal, but also the surgery of repair.

The whole book is clearly written and well illustrated. Important references are given at the end of each chapter. It is a good reference book and for the postgraduate student it will be invaluable. It can be highly recommended to all practitioners who deal with patients suffering from malignant disease.

B.J.D.

#### TEXT-BOOK OF SURGERY

*Textbook of British Surgery*. Vol. 4. Edited by H. Souttar, C.B.E., D.M. (Oxon), F.R.C.S. and J. C. Goligher, Ch.M. (Edin.), F.R.C.S. (Edin. and Eng.). Pp. viii + 699. 405 illustrations. 105s. net. London: William Heinemann Medical Books Ltd. 1959.

This volume (the fourth of the series) contains a rather incongruous mixture of subjects.

Inflammation and pyogenic infections are treated along time-honoured lines readily recognizable by those of us brought up in the Saint tradition of surgical teaching.

Infections of the hand are deservedly allocated a separate chapter; the long-accepted principles laid down by Kanavel are modified very considerably in the light of the effects of antibiotics.

The chapter on acute fractures is important for the examination candidate.

The subject of burns is beautifully covered in great detail and is quite one of the best in the book; the practical approach to treatment is admirable.

Two-thirds of the book is devoted to orthopaedics. General orthopaedics is covered by an orthopaedic surgeon and general diseases of bone by a pathologist. In the remaining chapters orthopaedics is dealt with in detail and with clear presentation.

As with the previous volumes of this series, this book will have its main application in the preparation of the candidate for a higher surgical qualification.

The high standard of paper and format is maintained.

P.C.W.M.

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